Journal
OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

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Vol. 135 **November 15, 1959** **No. 10**

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EDITORIAL STAFF: D. A. Price, *Editor in Chief;* A. Freeman, *Assistant Editor;* H. E. Kingman, Jr., *Managing Editor;* Eva G. Bailey, *Assistant to the Editors.*

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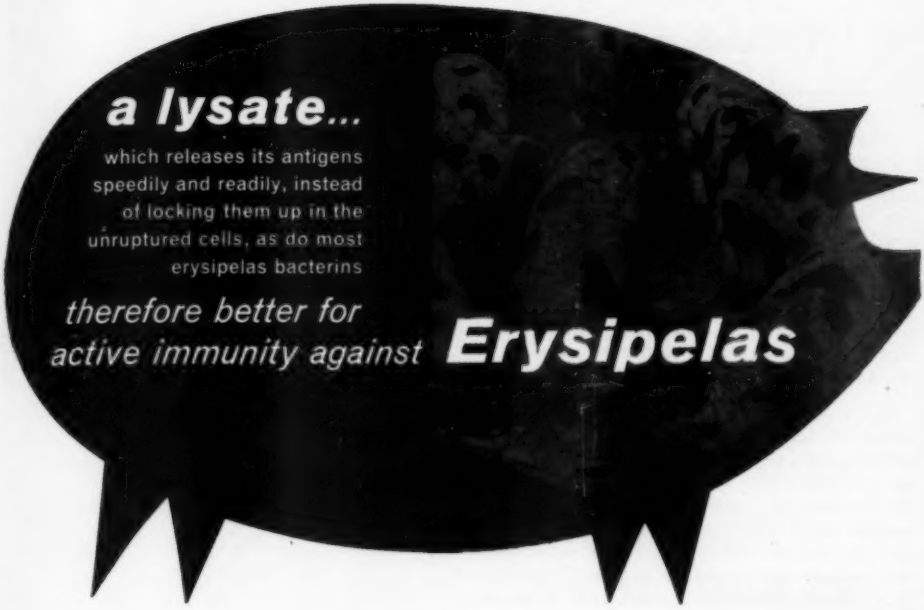
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Correspondence

(The following letter, sent to a member from the AVMA office and containing information about income tax deduction of insurance premiums, is published because of its possible interest to others.)

Dear Doctor:

We are writing in answer to your letter concerning the income tax deduction of premiums for the Association's group insurance.

Our counsel have advised that the regulations under the Internal Revenue Code permit the deduction of the premium for the hospital and surgical coverage only. The semiannual premium for the hospital and surgical coverage is $19.53 if the member alone is insured, or $56.37 if his dependents are also covered. This premium is deductible as a medical expense and not as a business expense. It is, therefore, deductible only to the extent that it, together with the taxpayer's other medical expenses, exceeds 3 per cent of his adjusted gross income. Premiums for disability income benefits and for life insurance are not deductible either as a medical or business expense, in the government's view.

The courts have followed the position of the government on this question, with the exception of one recent decision by the Court of Appeals for the Third Circuit, *Heard* v. *Commissioner*. In that case, the court disagreed with the government on this point and held that the entire premium for health and accident insurance, including the portion for disability income benefits and for loss of life or dismemberment, is deductible as a part of the total medical expense deduction.

Counsel also advises that the fact that the policy is entitled "Health and Accident" instead of "Income" insurance should have no bearing on the deductibility of the premiums.

Sincerely

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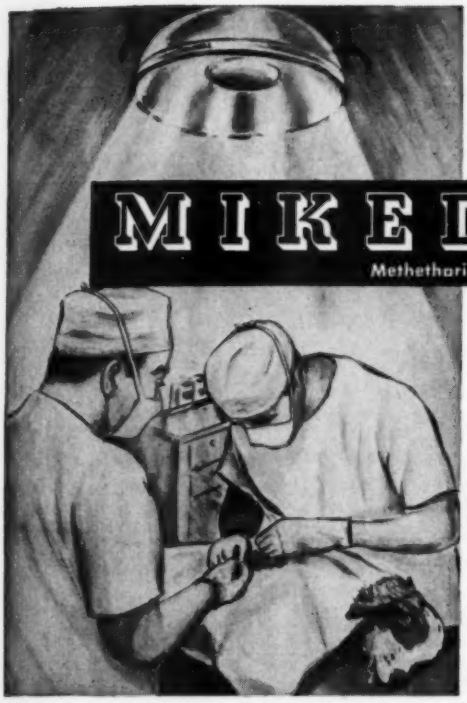

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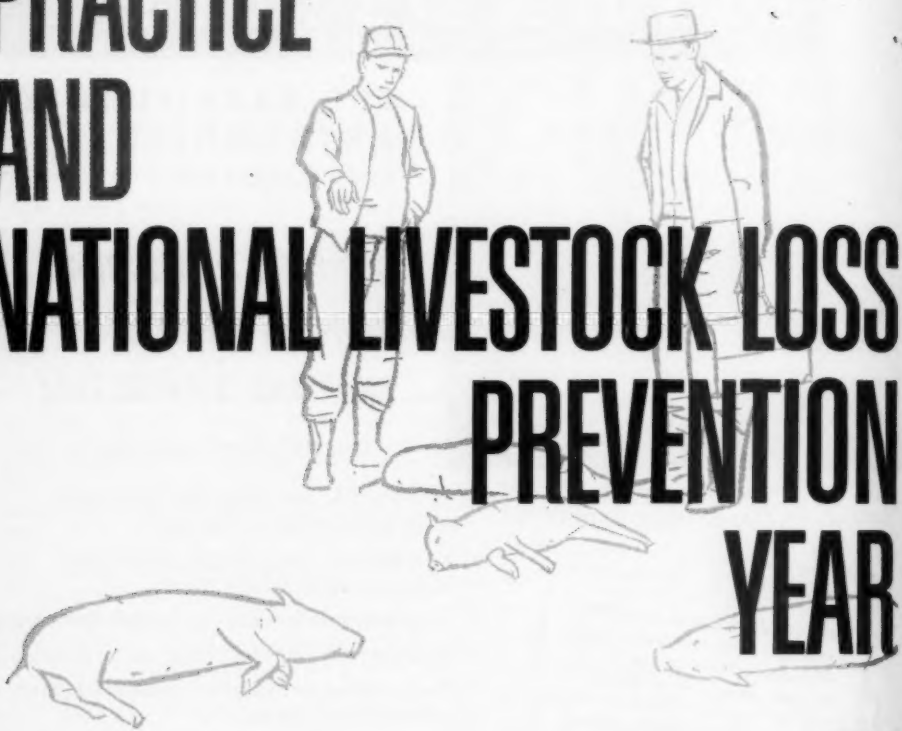

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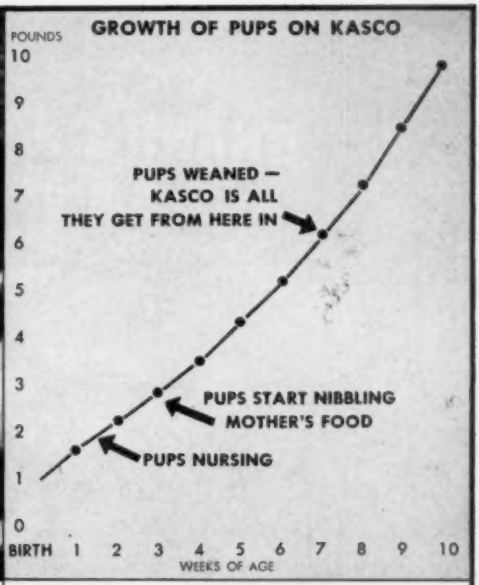

Note steady weight gains. Chart shows average growth of puppies from birth through ten weeks of age. Through nursing, weaning, and after weaning, dam and puppies received only Kasco Natural Dog Meal and water.

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REFERENCES: 1. Mosier, J. E., and Coles, E. H.: Vet. Med. 53:649 (Dec.) 1958. 2. Belloff, G. B.: Calif. Vet. 9:27 (Sept.-Oct.) 1956. 3. Mosier, J. E.: Vet. Med. 52:445 (Sept.) 1957.

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FROM THE AVMA WASHINGTON OFFICE

LEGISLATION

Compensation for Scientific and Professional Personnel in U.S.D.A.

Public Laws: 86-370, Sept. 23, 1959 (S. 1845) provides for reestablishment of rates of basic compensation for certain government positions. Included is authority for Secretary of Agriculture to establish and fix compensation for not more than 15 scientific or professional positions in U.S.D.A., each position being established to effectuate those research and development functions which require specially qualified personnel. The Act also gives Secretary of Health, Education, and Welfare authority to establish ten scientific or professional positions in that Department which require specially qualified personnel for research and development functions.

Federal Radiation Council Established

86-373, Sept. 23, 1959 (S. 2568) amends Atomic Energy Act of 1954, as amended, with respect to cooperation with states. Purpose is to recognize the interest of states in peaceful uses of atomic energy, clarify the responsibilities of states and the Commission, including control of radiation hazards. Establishment of a Federal Radiation Council which, among other responsibilities, shall advise the President regarding radiation matters affecting health, including guidance for all federal agencies.

Advisory Commission on Intergovernmental Relations

86-380, Sept. 24, 1959 (H.R. 6904), establishes an Advisory Commission on Intergovernmental Relations. A bipartisan commission of 26, established to give continuing attention to intergovernmental problems, including those common to all levels of government; give critical attention to conditions and controls in administration of federal grant programs; technical assistance to the executive and legislative branches of federal government in review of proposed legislation to determine over-all effect on federal system, and recommend methods of coordinating and simplifying tax laws and administrative practices to reduce burden of compliance for taxpayers.

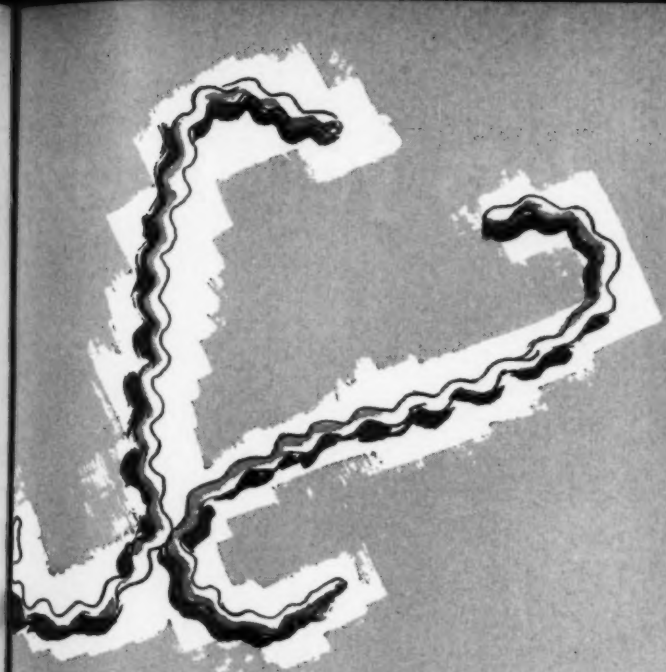
MISCELLANEOUS

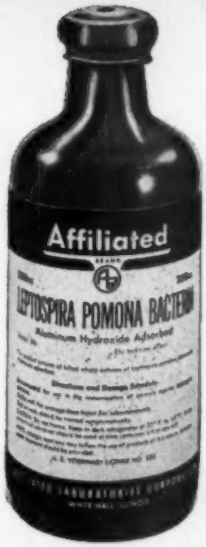
Requirements Changed for GS-7 and GS-5

U. S. Civil Service Commission amended its regulation pertaining to formal education requirements for veterinary student trainees (Fed. Reg., Oct. 5, 1959). Veterinary students who have successfully completed three years of academic training in an accredited school of veterinary medicine may now be appointed to grade GS-7 (previously was GS-5); those veterinary students with two years of academic training may be appointed to grade GS-5 (previously was GS-4).

Research on Avian Leukosis

U.S.D.A. has accepted $100,000 grant from the American Cancer Society to expand its research on avian leukosis, now being conducted at ARS Regional Poultry Research Laboratory, East Lansing, Mich.





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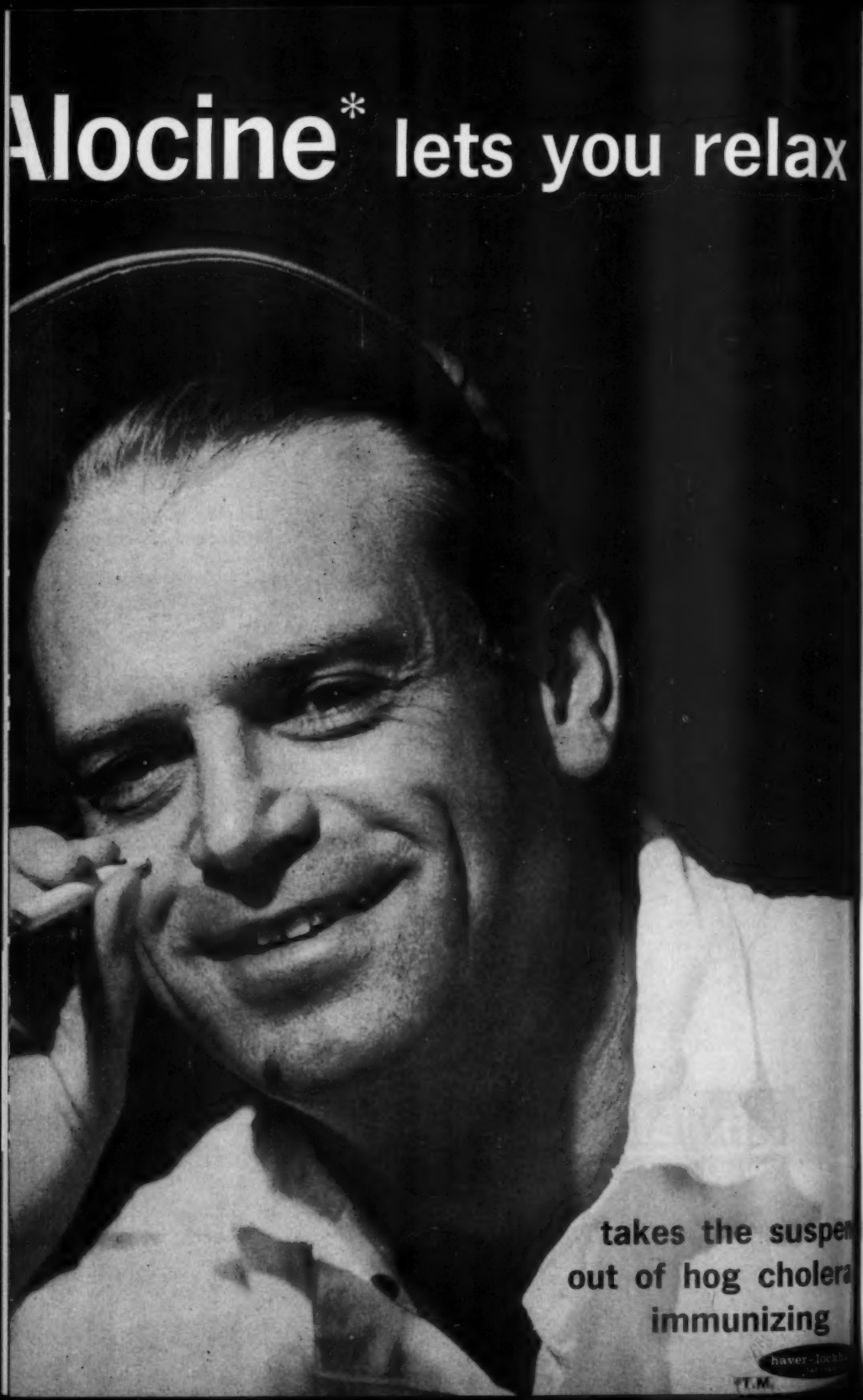
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takes the suspe
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Pectin	4.0 grs.
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Each bolus is the approximate equivalent of one fluid ounce of Keosul suspension.

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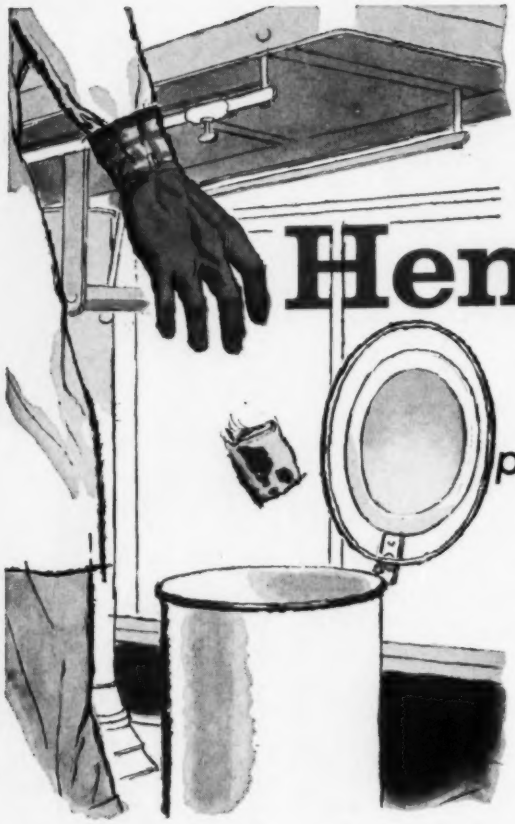

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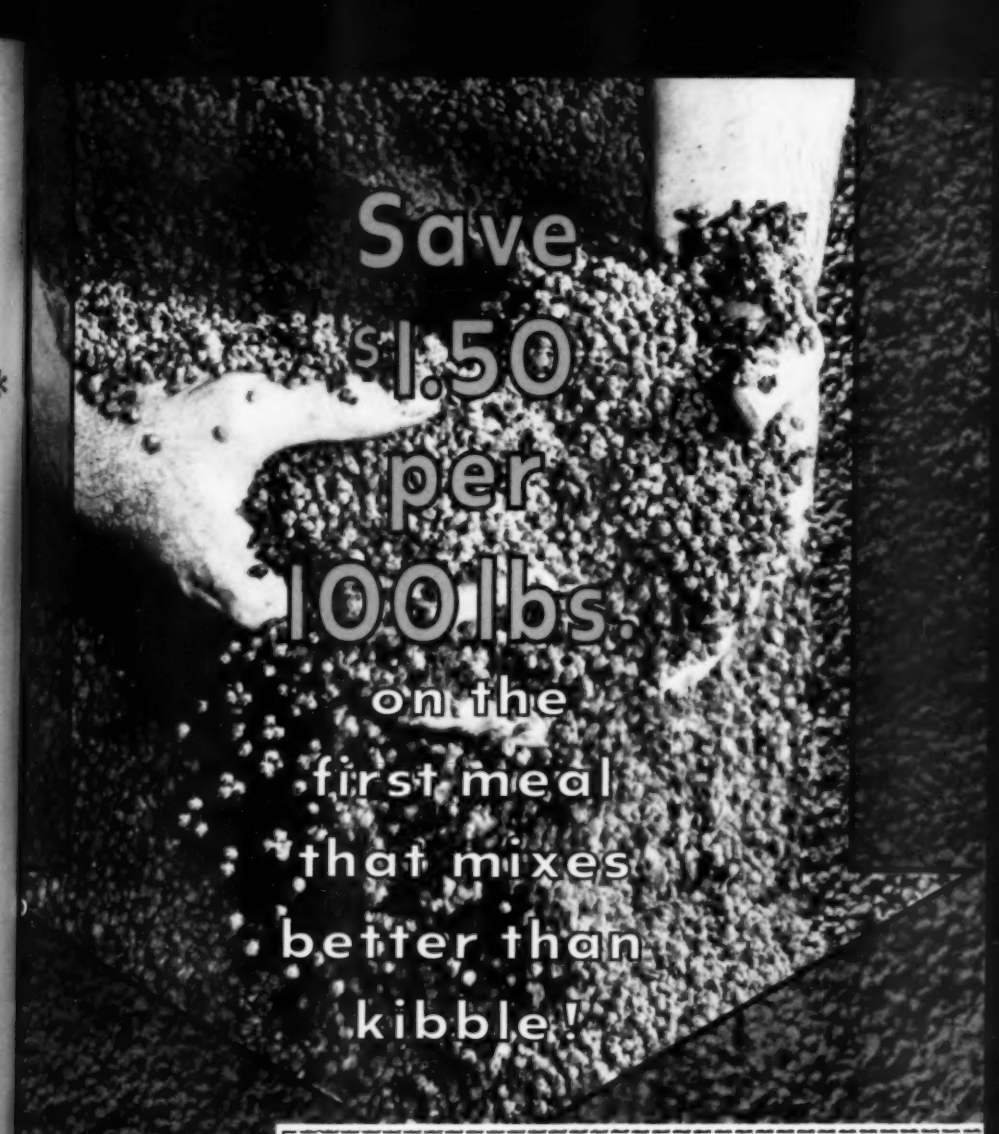

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It's that simple! And the savings go on and on, with each additional 500 lbs. you purchase. Start saving now! Complete and return the handy coupon today!

New crunchy nuggets keep their shape for hours . . . won't mush or cake, even in boiling water. They're better tasting, improved with the flavor of real beef!

New Gaines is highly digestible. Specially processed to prevent stool problems. And each nugget contains the same homogenized balance of essential nutrients that has helped generations of champions to a *longer prime of life.*

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Name of kennel (if any) _____

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City _____ **Zone** _____ **State** _____

As a Kennel Plan member, you'll also receive:

- **Expert advice and information from the Gaines Dog Research Center.**
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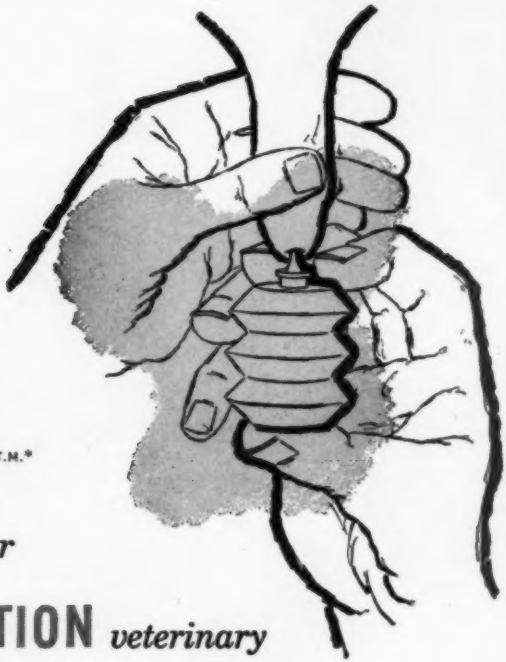

for **MASTITIS** *of*

dry and lactating cows

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single-dose dispenser for

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- delivers one full dose
- is discarded after using
- saves time
- is convenient, especially when a number of cows are to be treated
- unique package

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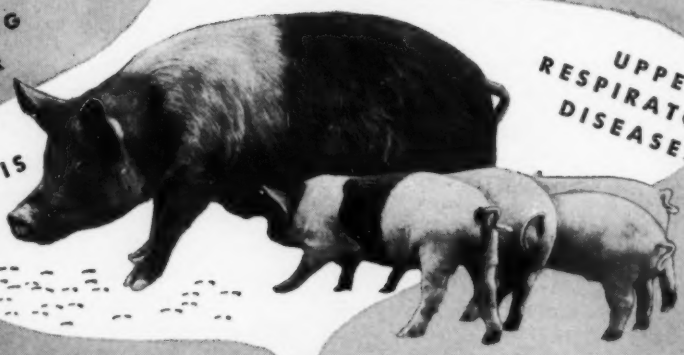

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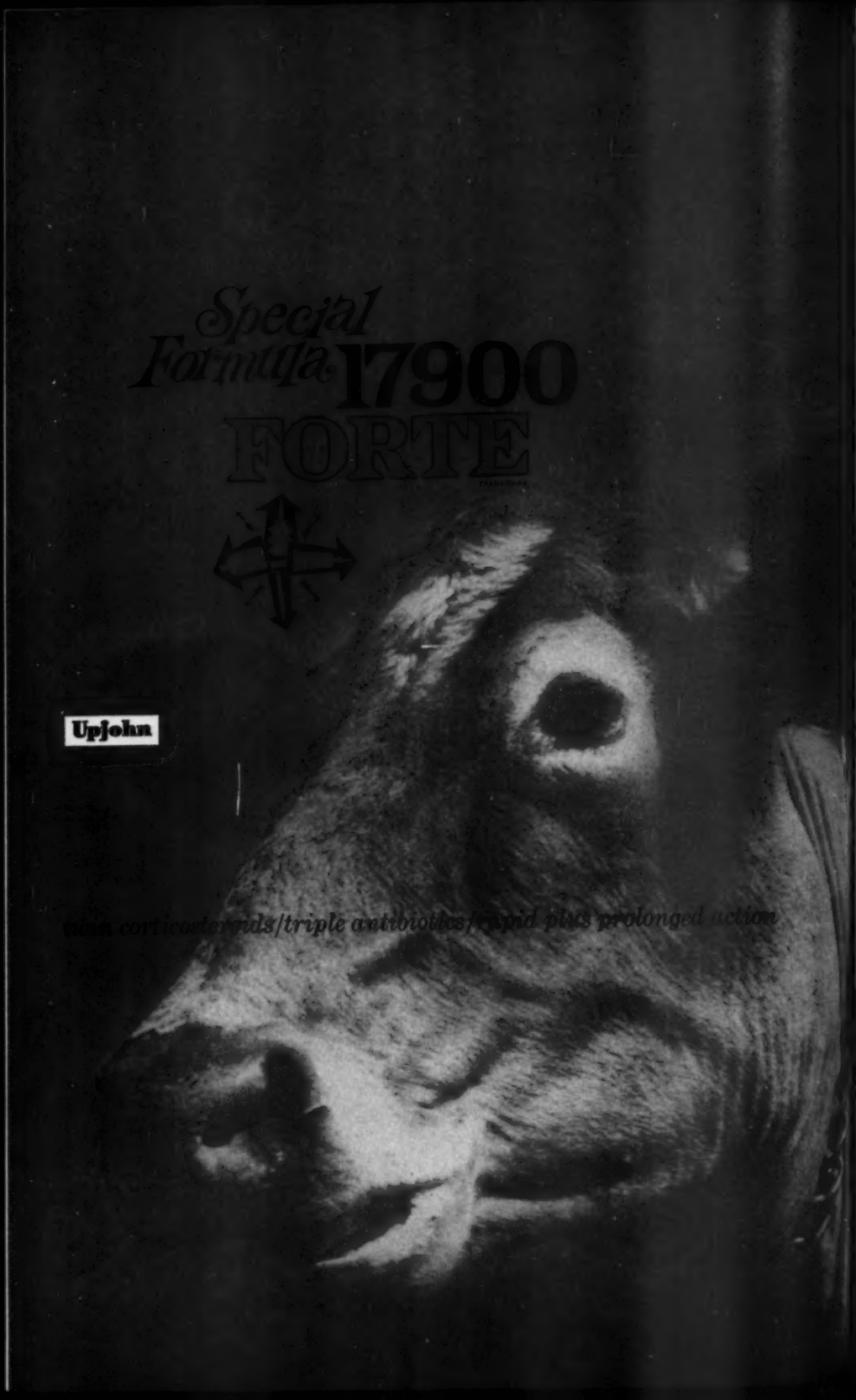
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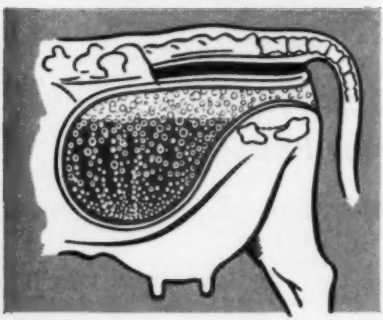

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Immunity to Bovine Cutaneous Papillomatosis Produced by Vaccine Homologous to the Challenge Agent

C. OLSON, D.V.M., Ph.D.; D. SEGRE, D.V.M., Ph.D.; L. V. SKIDMORE, D.V.M.

Madison, Wisconsin

PREVIOUS WORK[1] has indicated that there was a difference in the immunity induced by commercial wart vaccine prepared from bovine tissue when compared with that induced by commercial vaccine of chicken embryo origin. The question arose of a possible difference between the antigens of the vaccine and the materials used for challenge.

An experiment was devised in which cattle were vaccinated with bovine tissue vaccine and chicken embryo vaccine prepared from the same strain of bovine papilloma virus used for challenge. In addition, two commercial vaccines were used for vaccination of other calves. Four materials containing active wart agents were used for challenge. Two were wart virus in a suspension of bovine wart tissue, one strain being used for vaccination and the other an unrelated strain. The other two challenge materials were the same strains of agent after several passages in chicken embryos.

A preliminary report of the experiment has been made.[3] Significant details constitute the basis for this report.

MATERIALS AND METHODS

The test animals were 118 Hereford steers,* 8 to 9 months old. They were raised on a ranch and then brought to the University of Nebraska for a feeding trial. No warts were found on any of these calves prior to the experiment. On Dec. 7, 1953, 103 of the 118 were given the first of two subcutaneous injections of wart vaccine, with the second injection two weeks later. Some were given 5 ml. per dose, others 20 ml. per dose (table 1). Vaccines A and B were purchased from commercial sources, and vaccines C and D were prepared for the experiment.

Vaccine C was prepared from warts (strain 200) obtained at the time of slaughter from a Shorthorn heifer that had many cutaneous papillomas which appeared to be in a state of proliferation. Most of the warts were clipped from the skin. Some were fixed in 4 per cent formaldehyde, and the remainder placed in 50 per cent glycerin solution. After 24 hours, the formalin-fixed tissues were ground in a Waring blendor with a small amount of formalinized saline solution. The tissues were then suspended in physiologic saline solution containing 0.5 per cent formalin to obtain a 7 per cent tissue suspension. The coarse material was removed by filtration through gauze. The preparation was then kept at room temperature for 12 hours and transferred to 5 C. until used. Aerobic cultures of the vaccine were sterile.

Vaccine D was prepared as follows. Wart tissue (strain 200) which had been stored in glycerin was ground with physiologic salt solution to make a 10 per cent suspension. Penicillin and streptomycin were added. The tissue suspension was centrifuged to remove coarse material, and the supernatant fluid used to inoculate the chorioallantoic membrane of 10-day-old chicken embryos. The embryos were incubated at about 38 C., and six days later were killed by chilling at 5 C. for a few hours. In some embryos there was thickening and edema of the chorioallantois. The chorioallantoic membranes were pooled and made into a 10 per cent suspension in physiologic salt solution. The suspension was used as inoculum for subsequent passage in chicken embryos. To prepare vaccine, chorioallantoic membranes from the first and second chicken embryo passages were ground in a

From the Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln. Data were compiled and the report prepared at the University of Wisconsin. L. V. Skidmore is associate professor Emeritus, University of Nebraska. C. Olson and D. Segre are now in the Department of Veterinary Science, University of Wisconsin.

Published with the approval of the director as paper No. 958, journal series, Nebraska Agricultural Experiment Station.

*Made available for experiments through the cooperation of the Department of Animal Husbandry.

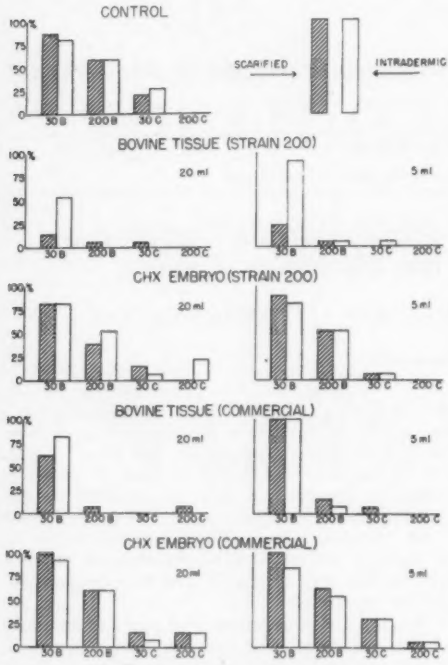

Fig. 1—Percentage of calves which developed growths from four papilloma virus preparations. Each group consisted of 12 to 15 calves. The vaccinated calves were given two doses of four kinds of vaccine in amounts indicated. The results shown represent growth from challenge with strains 30 and 200 (30 B = strain 30 in bovine tissue and 30 C = strain 30 in chicken embryo tissue — the same for 200 B and 200 C, respectively), which were inoculated intradermally to stimulate connective tissue growth and on scarafied skin to stimulate epithelial growth. The results in the vaccinated calves can be compared with those in the control group. Some of the calves previously vaccinated had growths from strain 200 material cultivated in chicken embryo which was inactive in the control calves.

Waring blendor and suspended in physiologic salt solution containing 0.5 per cent formalin to make a 5.0 per cent tissue suspension. The coarse particles were removed by filtration through gauze. The suspension was allowed to stand at room temperature for 12 hours and then stored at 5 C. until used. Aerobic cultures of the preparation were sterile.

During the experiment, the test animals were maintained in 12 lots of 10 animals each. They were arranged in lots for the feeding experiment without respect to their type of immunization with wart vaccine, except that 1 or 2 nonimmunized calves were kept in each lot as controls.

Forty-four days after the last injection of wart vaccine, the immunity of all calves was challenged by the inoculation of preparations containing active wart virus. Of the four preparations used, two were glycerinated bovine papilloma tissues, representing strains 200 and 30, and two were preparations of chorioallantoic membranes from chicken embryos in which strain 200 and strain 30 had been propagated for six to seven chicken embryo passages.

The challenge preparations were inoculated at duplicate sites both intradermally and on scarified skin. The animals were examined three times at monthly intervals for evidence of reaction to the challenge preparations. The size and characteristics of the growths were recorded.

RESULTS

The results of the experiment can be examined best by considering the calves in groups according to the type of preparation used for vaccination and the relative activity of the materials used for challenge. The control group of unvaccinated calves served as a standard with which comparisons were made.**

It was not possible to determine whether protection was obtained against the challenge with the materials of chicken embryo

**The statistical significance of the comparisons were determined at the 5 per cent level by use of the probability tables of Mainland, Herrera, and Sutcliffe[2].

TABLE 1—Experimental Immunization Against Bovine Cutaneous Papillomatosis in 118 Steers

Group	Animals in group (No.)	Wart vaccine	First injection (12-7-53)	Second injection (12-21-53)
1	13	A	5 ml.	5 ml.
2	13	B	5 ml.	5 ml.
3	13	C	5 ml.	5 ml.
4	13	D	5 ml.	5 ml.
5	13	A	20 ml.	20 ml.
6	12	B	20 ml.	20 ml.
7	13	C	20 ml.	20 ml.
8	13	D	20 ml.	20 ml.
Controls	15	.....	.....	.....

A—Bovine tissue vaccine (commercial); B—chicken embryo vaccine (commercial); C—bovine tissue vaccine strain 200; D—chicken embryo vaccine strain 200.

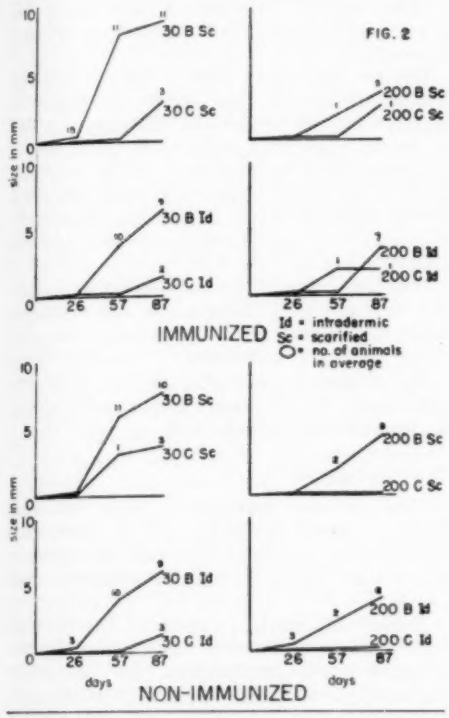

Fig. 2—Duration and size of growths in calves after inoculation with four bovine papilloma preparations (30 B = strain 30 in bovine tissue, 30 C = strain 30 in chicken embryo tissue, see fig. 1). The four upper graphs are results in 13 calves which had been previously vaccinated with two 5-ml. doses of chicken embryo vaccine (commercial) and four lower graphs illustrate the results in nonvaccinated control calves. There was no evidence of immunity in the vaccinated calves.

origin, because of the low level of infectivity of these materials in the control group.

In general, the reaction to intradermal inoculation was a nodular type of swelling in the corium of the skin as a result of fibroblastic reaction with little epithelial proliferation. Reaction to inoculation on scarified skin was characterized by proliferation of epithelium. The reactions were most marked 60 days after inoculation.

The most active challenge material was bovine tissue of strain 30 which produced reactions in about 75 per cent of the control calves, both intradermally and on scarified skin. Bovine tissue 200 was active on 50 per cent of the control calves. Strain 30 material, which had been grown in chicken embryo, was active in only 25 per cent, and strain 200 in none of the controls (fig. 1).

The most effective immunizing agent was bovine tissue of strain 200. In the group given this vaccine, significant protection was obtained with both the 20-ml. and 5-ml. doses against scarification challenge with bovine material of strain 30, and both scarification and intradermal challenges with bovine material of strain 200.

The chicken embryo preparation of strain 200 did not immunize against any of the challenge preparations.

The commercial bovine tissue vaccine offered no significant protection against the challenge preparation of bovine tissue strain 30, but there was definite protection against bovine tissue strain 200 preparation.

There was no evidence that commercial chicken embryo wart vaccine gave protection against the challenge materials as judged on the percentage of calves developing growth (fig. 1), or the duration of the growths which did develop (fig. 2).

DISCUSSION

The results seem to indicate rather clearly that chicken embryo preparations of bovine papilloma virus were not effective in immunizing against challenge preparations of papilloma virus. The bovine tissue vaccine of strain 200 induced significant, although not absolute, immunity against challenge by the same strain. Significant protection was also obtained with this vaccine against challenge with the more virulent strain 30 on scarified skin. The commercially prepared bovine tissue wart vaccine afforded protection against only bovine strain 200.

If the immunizing ability of a vaccine preparation depends on the concentration of virus, then the tissue of warts from cattle would be better than chicken embryo preparations since the latter had much less activity. Perhaps the agent of bovine papilloma grows slowly in the chicken embryo. This is suggested by the low degree of activity of two strains of agent grown in chicken embryo for several serial passages.

CONCLUSIONS

Formalinized bovine tissue wart vaccine was more effective than formalinized chicken embryo vaccine in inducing resistance

against challenge inoculations with bovine wart preparations. However, the resistance was not complete to all strains of the wart virus even though relatively large doses of the vaccine were used.

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Purulent Panophthalmitis in Laboratory Rats

L. P. JONES, D.V.M.

Oak Ridge, Tennessee

In a colony of 1,500 Sprague-Dawley rats maintained at UT-AEC Agricultural Research Laboratory, an acute epizootic of purulent panophthalmitis was observed. At first, only a few rats had a slight swelling of the third eyelid or the conjunctiva or both, but lesions gradually developed. By the fourth day, the conjunctiva, the inner eye structures (iris, ciliary body, ciliary process, and occasionally the retina) and the cornea were severely involved. Bilateral blindness was a frequent result.

Clinically, there was reddening of the conjunctiva, slight lacrimation, progressive periorbital edema, photophobia, and blindness associated with the severe keratitis, hypopyon, or hypemia. The eyes were often so severely involved that the rats were unable to close their lids, the eyeball protruding from the socket.

The early cases occurred in older individuals (8 mo. or older) some of which had a history of irradiation. Pregnant animals, whether irradiated or not, seemed quite susceptible, suggesting a possible relationship to stress. In a previous outbreak of a similar nature[1], the young rats were the ones primarily involved, in contrast to our experience.

Of the 1,500 rats present in the colony, approximately 40 per cent of those 5 months old or older had definite clinical signs of panophthalmitis; no such signs were observed in the younger (4 mo. and under) ones although they were exposed to the affected rats. The latter, however, appeared less active and consumed less feed and water than normally.

The organism, identified as *Staphylococcus aureus*,* was observed in and cultured from direct smears of the conjunctiva, anterior chamber, and cornea. Two other bacterial forms were observed, one a gram-positive dumbbell-shaped rod, and the other a gram-negative slender rod.

Histopathology

Eye sections were fixed with buffered ($CaCO_3$ chips) formalin (10%), imbedded in paraffin, sectioned through the median plane and stained with hemotoxylin and eosin.

There was marked edema of the corneal epithelium with massive infiltration of neutrophils and lymphocytes. The adjacent conjunctiva was also infiltrated with neutrophils as was the ciliary process, ciliary body, and occasionally the retina. The anterior chamber was usually filled with cellular debris consisting of a pinkish staining, acidophilic fluid matrix and fragments of squamous epithelial cells, neutrophils and lymphocytes, and, in some cases, large numbers of red blood cells. In one instance, massive hemorrhage into the anterior chamber was observed clinically and microscopically. Bilateral involvement was the rule.

Treatment

All 500 rats which were scheduled to be killed the following week were immediately killed, thus eliminating the group most severely involved, *viz.*, the group of older rats.

Chlortetracycline, 25 mg. per day for five days, was administered via drinking water to the remainder of the colony. But in addition, the remaining affected animals were

From the University of Tennessee — Atomic Energy Commission, Agricultural Research Laboratory, Oak Ridge, Tenn.

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*Identification was made by Dr. J. M. Woodward, of the Bacteriology Department, University of Tennessee, Knoxville.

allotted to three supplemental treatment groups.

Group 1 contained 45 severely affected rats given one injection of 2 mg. of prednisolone intramuscularly and two applications of chlortetracycline ophthalmic ointment 48 hours apart.

Group 2 contained 24 severely affected rats treated with two applications of neomycin, bacitracin, polymyxin hydrocortisone ophthalmic ointment (Neopolycin*).

Group 3 contained 40 severely affected rats given only the oral chlortetracycline as a control.

RESULTS

Rats in group 1 had a rapid and uncomplicated recovery, even those which appeared clinically to have hypopyon. Those in groups 2 and 3 required supplemental treatment with chlortetracycline ophthalmic ointment; one to two treatments each as indicated.

Affected pregnant females which had been treated and recovered experienced no parturition difficulties, nor were the litters immediately involved. The litter size was not affected, but there was an impairment of the viability, with many young rats dying the fifth to eighth postnatal day. The colony is subject to many influences and, consequently, it is hard to say that this decreased viability was a direct result of this particular epizootic.

SUMMARY

A strain of *Staphylococcus aureus* was isolated from rats affected with acute purulent panophthalmitis. The infection involved the older, more mature animals and was confined to the region of the eye. The rats were effectively treated with chlortetracycline (both oral and local application) and recovery was hastened with a 2-mg. intramuscular dose of prednisolone.

*Neopolycin is produced by Pitman-Moore, Indianapolis, Ind.

Arthritis in Lambs

Both suppurative and nonsuppurative arthritis frequently occur in lambs in Australia. Most common is the nonsuppurative type caused by *Erysipelothrix rhusiopathiae* infection. Many cases follow docking, especially when it is done in sheepyards or paddocks. The suppurative type may be due to one of a number of infections and is usually accompanied by abscesses in other parts of the limbs and in the internal organs. Many cases of either type respond if treated early with penicillin. Lambs with chronic cases are unthrifty and seldom worth keeping.—*J. Agric. S. Australia (May, 1959): 440.*

Lumpy Skin Disease in African Cattle

An infectious skin disease of cattle, characterized by eruptions of cutaneous nodules on any part of the body and generalized lymphadenitis, has been found in several African territories since 1929. It recently appeared in Kenya where it has been confined to calves and the mortality has been low.

Over the years, the disease has slowly spread despite stringent quarantine restrictions and sanitary arrangements. The role of mosquitoes as vectors is being investigated. In severe cases, nodules are found in such internal organs as the oral cavity, pharynx, respiratory organs, and liver. Histologic examinations of lesions have revealed intracytoplasmic inclusions in many epithelial and infiltrating mononuclear cells.—*Nature (April 4, 1959): 949.*

A Machine Concentrates Protein

A device called a "mechanical cow," at a British Research Station, extracts protein from vegetation and solidifies it for consumption. The process, in general, resembles that of extracting protein from vegetation by feeding it to animals and then slaughtering the animals for meat. Whereas animals convert only about 5 per cent of the vegetable protein to animal protein, the machine is said to convert at least 50 per cent.

The grass or other vegetation is chopped and pressed to squeeze out the juice. This juice, which contains most of the protein but little cellulose, is then treated with steam to precipitate the protein. The juiceless choppings and the waste juice still have feeding value for animals. Pigs fed the new protein concentrate gained better than those fed a similar amount of animal protein feed.—*Sci. News Letter (June 20, 1959): 390.*

Swine Repopulation. II. Performance of "Disease-Free" Boars on Farms with Diseased Pigs

JAMES D. CALDWELL, B.S.; LAVON J. SUMPTION, Ph.D.; GEORGE A. YOUNG, D.V.M.

Lincoln, Nebraska

MANY LIVESTOCKMEN and veterinarians have contended that "disease-free" pigs obtained by hysterectomy and raised in isolation would not survive on farms when removed from their disease-free laboratory environment. Contrary to this prediction, many farms have been repopulated successfully with "disease-free" pigs. These pigs were taken to the farms after all other swine had been removed six weeks or longer to favor a low disease level. Many more producers might repopulate their farms with clean stock but not enough of these pigs are available. They may, however, want to use "disease-free" boars to prevent increasing the disease level of their herds.

The University of Nebraska Experiment Station swine herd, which was repopulated with "disease-free" pigs in the spring of 1956, is a source of breeding stock for a limited number of swine producers in the state. Such boars* have been placed on farms with diseased herds. This paper reports the results of using these boars.

MATERIALS AND METHODS

Twenty-one "disease-free" boars were sold, at 7 to 12 months of age, to 19 producers. Each boar had been "performance tested" for rate of growth, feed efficiency, and back-fat thickness. At 6 weeks of age, each had been vaccinated with a rabbit origin attenuated hog cholera virus vaccine and 20 ml. of anti-hog cholera serum. Each was also given 40 ml. of anti-hog cholera serum on the day of sale. The buyers were advised to contact their veterinarian for advice if erysipelas had been a problem in their herd.

Only 2 of the 21 boars were considered to be non-breeders and were replaced. To determine if their performance had been satisfactory a questionnaire was sent to the owners.

RESULTS AND DISCUSSION

Sixteen of the 19 producers returned the questionnaires. Three farmers indicated that the boars became stiff in the legs at first but recovered and in seven to ten days were active breeders. One boar "went off feed" for about a week, then started to eat normally and became a successful breeder. Disease problems, including influenza, pneumonia, erysipelas (chronic and acute), virus pig pneumonia, cholera, necrotic enteritis, bullnose, swine dysentery, atrophic rhinitis, leptospirosis, ascariasis, and lungworms had occurred on 11 of the 16 farms.

Of the 374 sows bred, on the 16 farms, 359 (96%) farrowed; however, detailed information on the litters of 158 of these sows was not available. The remaining 201 sows farrowed 1,721 live pigs (av. 8.56) and weaned 1,489 pigs (av. 7.40 per litter). Only 15 (4%) of the 374 sows failed to conceive.

Many of the swine diseases present in farm herds can be traced to breeding animals brought into the herd. The common practice is to bring in boars to mate with females raised in the herd. Thus the boars are most likely to be responsible for the introduction of disease into a farm herd. Chronic diseases, such as atrophic rhinitis, virus pig pneumonia, and swine dysentery, have been the most difficult to avoid.

Evidence from studies[2] indicates that complete repopulation of a farm herd with "disease-free" swine would be ideal. This involves removal of all swine from the premises four to six weeks before the new

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*Boars used in this study were from the University of Nebraska Swine Breeding Project of Lincoln Station, a project being carried out in cooperation with the Regional Swine Breeding Laboratory, Agriculture Research Service, U.S.D.A.

stock is to be introduced, thorough cleaning of the buildings and equipment, and obtaining pigs taken from sows late in pregnancy by hysterectomy and raising them in isolation, or purchasing them as offspring from "disease-free" gilts raised on well managed farms. Assurance that the swine have remained free of brucellosis and leptospirosis can be obtained by blood tests. The noses and lungs of litter mates of the gilts should be examined at slaughter for evidence of atrophic rhinitis and virus pig pneumonia. Since both of these are herd diseases, this would serve to indicate whether the retained animals were probably free of these diseases.

Often a producer has good stock and he does not wish to repopulate his herd. He is interested in sources of clean boars which will permit him to retain the high level of performance in his present herd. The information obtained in this survey indicates that "disease-free" boars in conventional swine herds will perform satisfactorily.

SUMMARY AND CONCLUSION

Twenty-one "disease-free" boars were placed in 19 farm herds. At least 11 of these farm herds contained pigs with some degree of disease. The boars adjusted to the environment on 12 farms without incident. On three farms, the boars developed leg stiffness but recovered in seven to ten days and became active breeders. One boar "went off feed" for one week, but recovered and became an active breeder. No reports were obtained from three farms. This survey indicates the usefulness of "disease-free" boars for adding genetic material to farm herds with reduced danger of introducing new diseases.

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Lapinized Hog Cholera Virus Studies

Experimental vaccination of 88 pigs, in Japan, with an American commercial lapinized hog cholera vaccine (rabbit-passaged 442 times), to be used without serum, resulted in transitional fever and slight anorexia in 72 (83%) after two to five days, leukopenia in many, signs of cholera in 13, and a fatal reaction in 3 (3.4%).

A strong immunity was produced; 76 per cent of the pigs showed no reaction when challenged within seven days while the others developed more or less fever for up to ten days. Serial passage in 3 to 5 pigs resulted in no increase in pathogenicity of the virus. Contact infection of healthy pigs seemed to occur.—*J. Sasahara et al. in Bull. Nat. Inst. Anim. Health (Japan) No. 37 (1959): 43.*

Effects of Lapinized Hog Cholera Virus Vaccine

Pigs, some of which had shown clinical reactions, were killed for microscopic study five to 28 days after vaccination with lapinized vaccine (without serum). Perivascular cuffing, mild and of nonspecific character, was found in the central nervous system of some of the animals. However, in all of the 3 pigs in which the reaction was fatal, there was a nonpurulent encephalomyelitis, hemorrhages in the spleen and lymph nodes, atrophy and necrosis of lymph follicles, degeneration of vessel walls, and swelling and proliferation of reticuloendothelial system cells.

The lesions "seemed to show a form of infection with attenuated virus."—*A. Okaniwa and R. Ishitani in Bull. Nat. Inst Anim. Health (Japan) No. 37 (1959): 27.*

Vitamin A Level in Shipped Calves

Blood levels of vitamin A, carotene, and sugar in feeder calves were within normal ranges and changed little when measured before shipping from Texas and after arrival in Ohio. The levels were not influenced by giving 450,000 units of vitamin A or 2 million units of penicillin and 2.5 Gm. of streptomycin prior to shipment. Some degree of hemoconcentration developed enroute.

Differential blood counts were normal during the early stages of shipping fever. Rectal temperatures of the calves were 102.3 to 102.8 F. before they were shipped and were 101.0 to 105.8 F., with 9 per cent above 105.0, upon arrival.—*C. Gale et al. in Cornell Vet. (July, 1959): 319.*

Short Cuts in Hematology

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Roslyn and Philadelphia, Pennsylvania

To obtain and store blood samples, a sterile, empty cartridge-needle unit* can be substituted for syringe, needle, and oxalated blood storage vial. Because the unit is disposable, it has two advantages: it does not require cleaning and a new needle is used to obtain each blood sample. The syringe is quickly and easily loaded and is also adjustable to either 1 cc. or 2 cc. sterile-needle units. In loading the syringe (fig. 1), the entire handle section containing the plunger is moved to a position at a right angle to the barrel of the syringe; the sterile-needle unit with the protective sheath over the needle is then ready for insertion into the barrel of the syringe. In figure 2 is shown the rubber sheath, which is used to protect the needle, the sterile-needle unit, and the syringe loaded with the sterile-needle unit and ready for use.

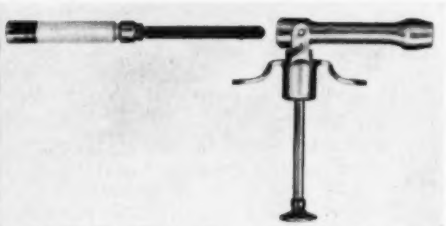

Fig. 1—Method of loading the syringe; the sterile-needle unit with the protective sheath over the needle is ready for insertion into the barrel of the syringe.

Heparinization is accomplished by drawing a small amount of heparin solution, 1,000 U.S.P. units per cubic centimeter, into the cartridge-needle unit and then ejecting it. The small amount of heparin solution which remains on the inner surface of the cartridge and in the lumen of the needle is adequate to prevent clotting without increasing the volume of the blood enough to alter the values significantly.

The meticulous cleansing of slides which is necessary to obtain acceptable blood smears can be simplified by washing them with a soapless detergent, rinsing them in clear water, and placing them in 99 per cent methyl alcohol. The slides are not removed from the alcohol until they are to be used.

Cell-counting pipettes can be cleansed by using an inexpensive suction-type rubber bulb. The suction-type rubber bulb is equipped with a valve providing one-way air movement. A short length of rubber tubing is used to connect the bulb to the mouthpiece of the pipette. The diluted blood, water, and acetone are drawn through the pipette by hand power instead of by water power. When it is necessary to clean only one or two pipettes, they can be cleaned by hand as rapidly as by the use of more complex apparatus.

A vibrator-type, electric-powered pipette shaker saves time, freeing the veterinarian for other duties.

Lack of deftness in exactly filling the chamber of the hemacytometer need not be a problem. This difficulty can be overcome by approximately filling the chamber and then sliding the cover glass in the proper direction necessary to accommodate the size of the counting chamber to the amount of diluted blood. A hand tally counter is useful for rapid leukocyte, erythrocyte, and differential counts.

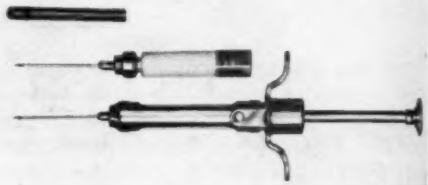

Fig. 2—Photograph showing the rubber sheath, the sterile-needle unit, and the syringe loaded with the sterile-needle unit and ready for use.

We are aware that short cuts tend to introduce inaccuracies, but their use is warranted when the practitioner is enabled, through the saving of time and ease of performance, to do work which otherwise would have been impractical.

Dr. Rosenberg is a small animal practitioner in Roslyn and Dr. Rude is a small animal practitioner in Philadelphia, Pa.

*Tubex is sold by Wyeth Laboratories, Philadelphia, Pa.

Postpartum Treatment of Dairy Cows

In four years, at the New Jersey Experiment Station, 137 cows (during 305 pregnancies), were assigned to the following experimental treatment lots at parturition: (1) normal calving—no treatment; (2) normal calving—500 mg. chlortetracycline into uterus within first 24 hours; (3) abnormal calving (dystocia or membranes retained more than 12 hours)—no treatment; (4) abnormal calving—intrauterine treatment daily with 15 Gm. sulfamethazine until recovery; and (5) abnormal calving—intrauterine treatment daily with 500 mg. chlortetracycline until recovery.

In lots 1, 2, 4, and 5 the breeding services per conception following this parturition were 1.47, 1.78, 1.78, and 1.64, respectively. In lot 3, of the 4 cows with dystocia 2 were rebred and conceived at the first and second services; of the 9 cows with retained fetal membranes (av. 5 days), 4 required treatment after three days, 7 conceived after an average of 1.57 services but 2 of the 7 aborted.

Apparently, treatment is of no benefit after normal parturition but is of definite benefit after abnormal parturition. Treatment with chlortetracycline was of more benefit than with sulfamethazine.—*J. Dai. Sci. (August, 1959): 1338.*

Povidone-Iodine Aerosol Spray in Surgery

The complex, povidone-iodine, in the form of an aerosol spray, was used as an antiseptic and germicide in the preparation of lacerations for emergency surgery, in the preparation of the skin for surgery, and in the treatment of burns and stasis ulcers.

In 200 emergency suture procedures and 100 major operations, povidone-iodine proved to be an excellent germicidal agent, facilitating the open therapy of burns and providing a protective covering for areas denuded of skin.

It aided in the maintenance of an ideal environment for healing. Even when applied to large, open wounds, discomfort was mild and transitory.

Povidone-iodine spray is a safe, time-saving, effective antiseptic and germicide for surgery, burns, and stasis ulcers.—*Am. J. Surg., 97, (Jan., 1959): 49-53.*

Advantages of an Electric Calf Dehorner

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The practice of dehorning dairy cows has become increasingly popular in recent years. Dairymen, including the breeders of registered animals, have enthusiastically taken this means of eliminating a potential and often real source of traumatic injury to their animals. While the average farmer is content with the removal of horns by any method, the purebred breeder is greatly interested in maintaining the esthetic appearance of his animals. If they are dehorned as adults, he expects that the procedure will be performed painlessly, bloodlessly, and with complete removal of horny tissue, but without deforming the animal's head, inflicting any other injuries, or interfering with the routine activity and production.

Fig. 1—Electric Calf Dehorner showing the heating end of a soldering iron in which a piece of copper tubing is inserted and is used to remove the horn button.

If animals are dehorned as calves, the owner is no less interested in the ultimate

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Fig. 3—The heating end of the dehorner and the horn button just removed from the head of the calf in figure 2.

Fig. 2—The head of a month-old calf which has been clipped prior to dehorning.

Fig. 4—The head of the calf in figure 2 immediately after removing one horn button.

Fig. 5—The head of a calf one week after the removal of both its horn buttons.

effects the dehorning will have on the appearance of the animals at maturity. He expects the calves to develop an appearance similar to naturally polled breeds. To attain this effect, it is necessary to dehorn at an early age, *i.e.*, 1 month. This will insure the least development of the poll, have the least effect on the development of the crest and, if performed as described, will result in a symmetrical well-proportioned head.

The author's experience with a "handmade" instrument (fig. 1) covers a three-year period and use on approximately 1,000 purebred Guernsey calves. Some of these are now in their first lactation. There have been no ill effects and no growth of horny tissue in these animals.

The calf dehorner* is a modified Stanley #385 heavy-duty soldering iron with its soldering tip removed by loosing an Allan set screw. In its place is inserted a 4- by ¾-inch piece of copper tubing. The exposed end of the tubing is ground to a thin edge which, in use, cuts a circular ring in the skin around the base of the horn button. In order to observe the horn bed at 3 to 5 weeks of age, it is necessary to clip the hair over the top of the calf's head (fig. 2). The calf is restrained with a halter, and its head is secured to a pen partition or a post about waist high. Approximately five minutes are necessary to initially heat the dehorner. After snugging the animal's head close to the operator's body to limit its movements, the cutting edge of the dehorner is centered over the horn button and pressed against the skin until the instrument burns through the flesh down to the underlying skull. Then with a "spooning" thrust of the dehorner, the horn button is gouged out completely (fig. 3).

If the operation is performed without haste, permitting the hot tubing to perform the cutting action, it will also cauterize the blood vessels and eliminate hemorrhage (fig. 4). Occasionally, a calf may rub or traumatize the wound and cause some bleeding. Although this is rare, it should still be watched. The dehorning produces no observable after-effects, and the calves will eat at the next meal without hesitation. The wounds heal rapidly (fig. 5).

This method of dehorning is highly satisfactory. The present commercial electric dehorners leave a great deal to one's judgment, and the ultimate results are seldom uniform. Either the iron was not sufficiently heated, or it was not left in contact with the horn bed long enough for complete destruction. With the use of the dehorner described, nothing is left to judgment, for the horn button is completely removed.

*Developed by Dr. Amos Stultz, Hopewell, N.J.

Torsion of the Uterus in a Sow

Three hours after a 400-lb. sow had finished farrowing a litter of 9 pigs, she still showed signs of labor but no particular restlessness. It was her fourth litter. On examination, a 270 degree counterclockwise torsion of the uterus was found. The vagina could not be penetrated with a finger. The sow was anesthesized for laparotomy. After opening the left flank, more pigs were found in both cornua. The uterus was grasped close to the bifurcation and the torsion corrected. With the aid of an assistant, through the vagina, and massage of the uterus, 5 more live pigs were delivered.

No possible reason for the torsion was found. Although the sow turned from one side to the other occasionally, her movements had not been violent. She made a satisfactory recovery.—*W. J. Nijhof in Tijdschr. Diergeneesk. (July 15, 1959): 774.*

Effect of Polyvinyl-Formal Sponge on Cortical Bone Healing

Experience with 21 dogs shows that polyvinyl sponges placed in cortical bone defects definitely can cause delay in healing of bone and can prevent complete healing for as long as one year. No evidence of infection was found.

Bone invaded the sponge most rapidly from the edges of the cortical defects. Fibrous tissue was transformed directly into bone at the periphery of the sponge. Within the medullary cavity, ossification in irregular concentric patterns bridged the defect.

Little if any bone was formed from the periosteum, which usually ended abruptly at the edges of the defects. Bone invaded rather than pushed aside the sponge. The sponge does act as a framework for bone. —*Proc. Staff Meet., Mayo Clinic (Sept. 17, 1958): 453.*

Clinical Data

The Prophylactic and Therapeutic Value of Furazolidone Against Infectious Sinusitis of Turkeys

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INFECTIOUS SINUSITIS in turkeys is caused by a pleuropneumonia-like organism (PPLO*). Recent research developments indicate that this economically important disease may eventually be eradicated. Until this goal is accomplished, the prophylactic and therapeutic value of drugs continues to be an important consideration.

A number of investigators[4,5,7-9] have shown that streptomycin, dihydrostreptomycin, and other antibiotics have activity against PPLO, and that some of these agents when injected into swollen sinuses are effective treatments. However, the effectiveness of streptomycin and dihydrostreptomycin, which have been used extensively for this purpose, has apparently diminished. Clinical observations indicate that the causative agent in some cases is resistant to streptomycin. This is probably explained by a recent report[3] that PPLO develop a one-step resistance to this drug.

An effective treatment for the "lower form" of the disease has not been reported. Although no highly effective therapeutic agent that can be administered in the ration has been reported for either form of the disease, antibiotics given parenterally at high concentrations have been observed to have some value.[5,10]

In vitro studies[2] have shown that furazolidone compared favorably with streptomycin in ability to kill one avian strain of PPLO. Others[1,11] have reported that furazolidone and other nitrofurans were equal, or superior, to antibiotics as a treatment for infectious sinusitis. These compounds have a possible advantage in that microorganisms apparently do not readily become resistant to them.

The primary objectives of this study were: (1) to determine the ability of furazolidone (NF-180**), when administered in the ration, to prevent the development of signs and lesions in turkeys experimentally infected with various strains of PPLO, and (2) to determine the therapeutic value of a suspension of this furazolidone injected directly into affected sinuses.

The results, while indicating that furazolidone had some prophylactic value against certain PPLO strains, indicated that medication in the ration did not provide a practical level of prophylaxis. On the other hand, one suspension gave good results when injected into swollen sinuses.

EXPERIMENTAL PROCEDURE

The ability of furazolidone administered in the ration to prevent infectious sinusitis in turkeys inoculated with known strains of PPLO was determined in two separate trials. In the first trial (table 1), 75 poults, 6 weeks old, were allotted to three groups of 25 birds each and C2 strain[6] of PPLO was inoculated into the sinus and trachea. The ration given to group 1 contained 100 Gm. of furazolidone per ton, while in group 2 the dosage was increased to 200 Gm. per ton. The medicated feed was started three days before inoculation and continued for four weeks.

Group 3 consisted of infected nonmedicated controls. The birds were handled individually on postinoculation days seven, 14, and 28, and scored for the presence or absence of signs of respiratory disease or sinus swelling.

In the second trial (table 1), four PPLO strains (T1, C2, C1, and C6)[6] were used and the furazolidone again administered in the feed. The 160 turkeys, 6 weeks old, were placed in eight lots of 20 birds each. Birds in duplicate lots were inoculated with each strain. Those in one group inoculated with each strain were given feed containing 200 Gm. of furazolidone per ton at the time of inoculation. Medication was continued for two weeks. The second group

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These studies were supported in part by a grant from Hess and Clark, Inc., Ashland, Ohio.

*Recently this organism was classified as Mycoplasma gallinarium in Bergey's Manual of Determinative Bacteriology, 7th ed., 1957; however, this description differs in many respects from the strains used in this study.

**NF-180 is produced by Hess and Clark, Inc., Ashland, Ohio.

TABLE 1—Results of Using Furazolidone in the Feed as a Preventive of Infectious Sinusitis in Turkeys

Group No.	No. birds	Strain of PPLO	Treatment	Birds affected (No.)	(%)
		(Trial one)			
I-1	25	C2	100 Gm.	19	76
I-2	25	C2	200 Gm.	21	84
I-3	25	C2	None	21	84
		(Trial two)			
II-1	20	T1	200 Gm.	4	20
II-1A	20	T1	None	6	30
II-2	20	C2	200 Gm.	2	10
II-2A	20	C2	None	7	35
II-3	20	C1	200 Gm.	1	5
II-3A	20	C1	None	2	10
II-4	20	C6	200 Gm.	7	35
II-4A	20	C6	None	14	70

infected with each strain was given no medication. Each bird was examined for signs of respiratory disease or sinus swelling 21 days after inoculation.

The history and characteristics of the PPLO strains used in this experiment have previously been reported.[6] They are maintained by propagation in the yolk sac of chicken embryos from a PPLO-free flock. The inoculum in this study was infected embryo fluids, broth cultures, or a mixture of the two.

The therapeutic value of two furazolidone suspensions, when injected into swollen sinuses, was studied in several groups of turkeys experimentally infected with known strains of PPLO. The survivors from the prophylactic studies were utilized for treatment trials. The feed treatment, trial 2, was designed to also supply affected birds for treatment by injection of the suspension. This was intended to provide birds which would be affected with different strains of the organism, and also to allow a determination of whether or not medication in the feed would alter the results of later treatment by injection of the sinus. Only two of the strains (T1 and C6) produced a sufficient number of birds with swollen sinuses to be utilized for this purpose. After some of the therapeutic results were determined, additional groups of turkeys were inoculated with some strains to increase the total number of birds treated and to provide additional information on the response of birds affected with different strains of the organism.

Each of the two furazolidone suspensions† used contained 100 mg. per milliliter. Only birds in one group (group I-1, table 1) were treated with suspension number 1. All other treatment was with suspension number 2 which, according to the manufacturer, contained the compound in smaller particle size (micronized).

The desired amount of the compound was administered by injecting the suspension into the sinus. Only affected sinuses were treated and the exudate was not aspirated before treatment. The number of groups and individual sinuses treated, amounts used, previous treatment in the feed, strain of PPLO, and results of treatment are shown (table 2).

TABLE 2—Furazolidone Suspension as a Treatment for Infectious Sinusitis

Group No.	Strain of PPLO	Previously treated in ration	No. sinuses treated and amount used		Recovery (%)
I-1	C2	+*	12	100 mg.	33.3**
			13	200 mg.	15.3**
I-4	T1	0	8	200 mg.	100.0
II-1	T1	+	10	200 mg.	80.0
II-1A	T1	0	5	200 mg.	100.0
II-4	C6	+	23	200 mg.	86.9
II-4A	C6	0	24	200 mg.	79.1
III-1	T1	0	18	200 mg.	77.8
III-2	C2	0	27	200 mg.	70.4

*All birds from prophylactic trial one were combined and individual bird identity was not maintained; **treated with suspension No. 1—all other groups were treated with suspension No. 2.

RESULTS AND DISCUSSION

In the first trial (table 1), furazolidone administered in the ration at the rate of 100 Gm. and 200 Gm. per ton started three days before inoculation and continued for four weeks had no prophylactic value against infectious sinusitis in turkeys experimentally infected with the C2 strain of PPLO.

In the second trial, 200 Gm. of furazolidone per ton of feed, started at the time of inoculation, apparently had some prophylactic value in turkeys infected with the T1, C2, C1, and C6 strains of PPLO (table 1). Twenty-one days after inoculation with each strain, the percentage of birds with signs of respiratory disease or swollen sinuses was as follows: Strain T1—medicated (20%), not medicated (30%); C2—medicated (10%), not medicated (35%);

†Both suspension supplied by Hess and Clark, Inc., Ashland, Ohio.

C1 — medicated (5%), not medicated (10%); and C6—medicated (35%), not medicated (70%). While the numbers are small, there was a trend toward a lowered incidence in all medicated lots, which indicated that the compound had some prophylactic value. That this was a suppression of clinical signs and not a complete prevention of infection was apparent, because the disease became evident in many birds shortly after medication was discontinued.

The response in the birds with swollen sinuses treated with the first suspension was poor (table 2). Of the 12 sinuses treated with 100 mg., the swelling regressed in 33.3 per cent, of 13 sinuses treated with 200 mg., only 15.3 per cent apparently were treated successfully.

In the groups treated with the second suspension, 200 mg. injected into each affected sinus resulted in a recession of swelling in 100.0 to 70.4 per cent of the sinuses treated. Of 107 sinuses treated with 200 mg. of this suspension, 86.9 per cent were successfully treated.

Because of the poor response in the birds treated with the first suspension, it was suspected that previous treatment in the feed may have influenced the results. The results of later treatment with the other suspension, however, did not substantiate this postulate. Apparently, the suspension of small particles of furazolidone was much more effective than the first suspension which contained larger particles.

SUMMARY

The ability of furazolidone, when administered in the ration, to prevent signs and lesions of infection in turkeys experimentally inoculated with PPLO was tested in two separate trials. In the first trial, neither 100 nor 200 Gm. of the drug per ton of feed was of significant prophylactic value in birds inoculated with the C2 strain of PPLO. In the second trial, 200 Gm. of furazolidone per ton of feed did have prophylactic value against some strains of PPLO. Prevention of clinical signs and lesions was, however, not complete in any group.

A suspension of furazolidone containing large particles was relatively ineffective as a treatment when injected into swollen sinuses, whereas a suspension of "micronized" particles gave good results. Of 107 sinuses treated with the latter suspension, the sinus swelling regressed in 86.9 per cent.

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Vitamin A in Tissues of Chicks

Beta carotene, given orally to chicks as an aqueous suspension containing Tween 60, at Ontario Agricultural College, appeared in the intestine tissue as vitamin A within one-half hour and in the liver in about one hour. The peak level occurred in the intestinal tissue at approximately four hours, and in the liver at eight hours.—*Poult. Sci. (May, 1959): 688.*

North American Blastomycosis in a Northern Sea Lion

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NORTH AMERICAN blastomycosis, caused by *Blastomyces dermatitidis*, is a chronic, granulomatous, and suppurative mycotic infection that has been reported with increasing frequency in man and animals. Spontaneous infections have been described as occurring in the dog and the horse.[3] It was reported to occur as a cutaneous infection or as a pulmonary one with systemic involvement as the disease progressed.[1] Others contend that the disease is primarily a pulmonary infection.[2,4]

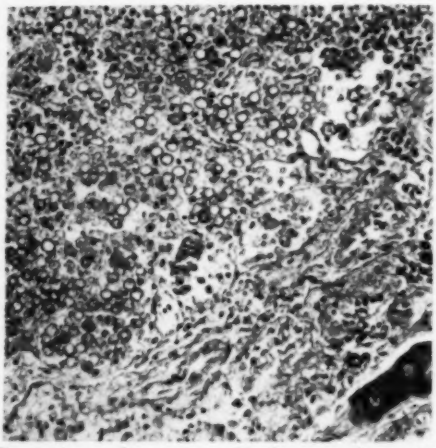


Fig. 1—Lung abscess in a Northern sea lion, with segmented leukocytes, necrotic debris, and massive numbers of cells of Blastomyces dermatitidis. Periodic acid-Schiff stain; x 163.

The exact method of infection in North American blastomycosis is not clearly understood, but it is believed to enter the body either by way of the respiratory tract or through an abraded skin area. There are no well-authenticated instances of transmission between animals and man or from man to man.[5] Since *B. dermatitidis* has not been isolated from the soil, or from any source other than human or animal infection, its natural habitat is unknown.[4]

The pathologic changes in a Northern (Steller) sea lion, *Eumetopias jubata*, from which *B. dermatitidis* was isolated, are here reported.

HISTORY

An 8-year-old female sea lion had been in a moated enclosure at the Chicago Zoological Park for the past six years and was in good health for most of the period. For several weeks before death, the animal was observed to spend more time than usual resting out of water. Anorexia with inanition was observed for several days prior to death. Immediately before death the sea lion was dyspneic, the abdomen was distended, and the thorax appeared to float high in the water. At the time of death, retching movements occurred, and blood-tinged fluid came from the mouth.

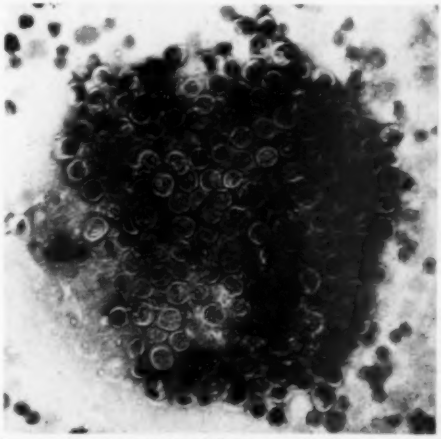


Fig. 3—Cerebrospinal fluid from a Northern sea lion, containing cellular aggregates of Blastomyces dermatitidis. Wright's stain; x 406.

Another female Northern sea lion, ob-

Dr. Williamson and Mrs. Getty are at the Animal Hospital, Chicago Zoological Park, Brookfield, Ill.; Dr. Lombard is an associate pathologist, Division of Biological and Medical Research, Argonne National Laboratory, Lemont, Ill.; her portion of the work was performed under the auspices of the U.S. Atomic Energy Commission.

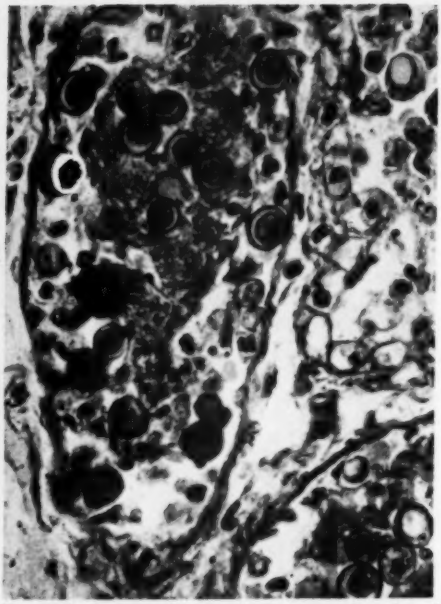
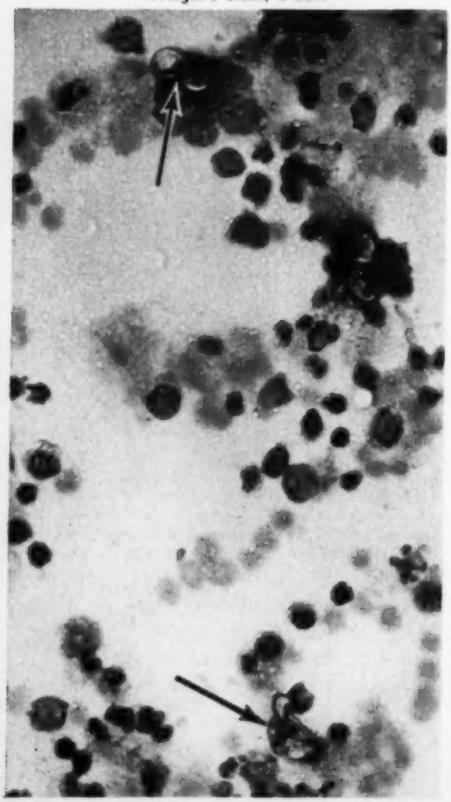


Fig. 2—Lung tissue from a Northern sea lion, heavily laden with cells of Blastomyces dermatitidis. Notice the yeast cells within the two vascular channels. Periodic acid-Schiff stain; x 528.

Fig. 4—Two single budding forms of Blastomyces dermatitidis (arrows) in the cerebrospinal fluid. Wright's stain; x 561.



tained at the same time, and a male purchased earlier, though they shared the same quarters and food supply, remained free of the disease. The female died eight months earlier than the male and no evidence of blastomycosis was found by gross and microscopic examination of the tissues. The fact that the sea lion moat is continually polluted, by the public, with such articles as marshmallows, peanuts, sticks, and other debris may be of some interest.

Necropsy Findings

Gross Observations.—The lungs were dark red, mottled with light colored, emphysematous areas. Frothy, blood-tinged fluid was found in the trachea and lungs. Many cream-colored, firm, nodular areas with semifluid centers were found scattered throughout the parenchyma of the lungs and a few such nodules appeared in the intrapulmonary portion of the trachea. The walls of the major bronchi were thickened and contained an opaque, reddish brown, putrid fluid. The sternal and bronchial lymph nodes were enlarged, nodular, and soft; the cut surface exuded a cream-colored, thick fluid.

Nodules similar to those occurring in the lungs were observed in the right axillary lymph node, spleen, liver, right thyroid gland, and kidneys. The cerebrospinal fluid was straw colored and cloudy. The brain and spinal cord were not examined.

Microscopic Observations.—Pulmonary lesions were predominantly those of exudative pneumonia and abscess formation. Thinly encapsulated nodules or abscesses contained large numbers of double-contoured, single-budding cells, as well as polymorphonuclear neutrophils, a few lymphocytes and plasma cells, and some necrotic debris (fig. 1). The bronchi and alveoli were partly or completely filled with the yeastlike organisms, inflammatory cells, erythrocytes, macrophages, and granular eosinophilic material. Some bronchi were almost entirely replaced by the mycotic organisms and inflammatory cells, with only fragments of the cartilaginous rings remaining. The organisms, either free or within macrophages, were found in intact blood vessels (fig. 2).

The splenic lymphoid tissue was partly replaced by proliferating reticuloendothelial cells. A few yeastlike organisms were found within macrophages; however, large num-

bers were free within areas of liquefaction necrosis.

Abscesses containing large numbers of mycotic cells were observed in the axillary and bronchial lymph nodes, liver, thyroid gland, and kidney.

The sediment of the cerebrospinal fluid contained the yeastlike cells singly and in aggregates, lymphocytes, neutrophils, and mononuclear cells (fig. 3, 4).

ISOLATION AND IDENTIFICATION OF THE FUNGUS

Necrotic material from the pulmonary lymph node, lung, thyroid, trachea, spleen, liver, and cerebrospinal fluid sediment was examined in wet mount, stained by Wright's, and in some instances by Ziehl-Neelsen and Gram's methods. Every preparation revealed the round, double-contoured yeastlike cells, 5 to 20 μ in diameter, many of which had single buds. The cells had a central granular mass surrounded by a refractile, double-walled, unstained zone which was bounded by a thin outer wall. No capsule could be seen in India ink preparations.

Culture material obtained from a pulmonary lymph node, the thyroid gland, and the cerebrospinal fluid was streaked on Sabouraud's glucose agar, Littman's oxgall agar, and blood agar. The blood agar was incubated at 37 C. and the others at room temperature. Four days later, the fungus appeared first on the Littman's agar. On original cultures and transplants, the growth at room temperature was of the mycelial phase—white, cottony, and adherent to the medium. At 37 C. the growth was consistently of the yeastlike phase, the colonies gradually developing to about 3 mm. in diameter, buff colored, smooth, round, raised, and somewhat dull. These colonies were made up of cells resembling those found in the tissues. The fungus was identified as *B. dermatitidis.**

SUMMARY

A spontaneous case of North American blastomycosis in a Northern sea lion, and the isolation and identification of the causative organism are described.

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*Confirmed by Dr. Lucille K. Georg, Communicable Disease Center, U.S.P.H.S., Chamblee, Ga.

Damaged Teat Keratin Aids Streptococcic Infection

Canals of two teats of each of 10 young cows were subjected to mild stress in an attempt to alter their resistance to *Streptococcus agalactiae* infection. No gross or histological changes and no change in resistance to this infection resulted (1) when small cotton swabs, moistened with an oily solution of an estrogen, were passed 6 mm. into the teat canal daily for five days preceding exposure, and (2) when the empty teats were repeatedly subjected to ten minutes of "milking" at an elevated machine vacuum of 17 inches following normal milking at 13 inches. However, infection with *Str. agalactiae* occurred in all teats from which the keratin lining of the teat canal had been removed with soft plastic cannulas at three milkings immediately prior to exposure. All of these teats were again resistant after the infection was removed by means of penicillin and sufficient time elapse for the keratin to be renewed.—*J. M. Murphy in Cornell Vet. (July, 1959): 411.*

Salt Solution for Endometritis

Chronic postpuerperal endometritis in 100 cows was studied. Vaginal mucus from 18 cows contained bacteria in pure culture; 7 were bacteriologically sterile. Of the 50 treated by infusion with 200 ml. of Lugol's solution, 38 soon conceived; of 50 infused with saturated NaCl solution, 40 soon conceived.—*Vet. Bull. (April, 1959): Item 1019.*

Clinical Applications of the Thyroidal I^{131} Uptake Test in the Dog

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Davis, California

THE IN VIVO measurement of radioiodine (I^{131}) uptake by the thyroid gland is an established clinical procedure for the assessment of thyroid function in man. It has been shown repeatedly that the amount of radioiodine accumulated by the thyroid gland bears a close correlation to its state of activity.[5,8,15] In addition, the administration of thyrotrophic hormone (TSH) in conjunction with the I^{131} uptake test has been of value in differentiating between primary hypothyroidism and hypothyroidism due to hypopituitarism in man.[10] These studies in domestic animals, however, have been largely limited to experimental trials in sheep,[3] cattle,[11] goats,[11] swine,[13] and dogs.[6]

The kinetics of I^{131} metabolism have been investigated over a short period in the anesthesized dog.[12] More recently, it was shown that unanesthesized dogs on restricted dietary iodine intake exhibited significant levels of I^{131} uptake while high dietary iodine intake, as well as hypophysectomy, would markedly depress I^{131} uptake.[6] Similarly, the use of iodine-containing compounds, e.g., oral Lugol's solution, are known to depress I^{131} uptake in man.[1]

The objectives of this study were to establish normal values for dogs maintained under natural conditions and to assess the value of the I^{131} uptake test as a clinical diagnostic aid. Accordingly, I^{131} uptakes were measured in normal pound dogs, in thyroidectomized dogs, in hypophysectomized dogs before and after TSH administration, and in selected subjects received in our small animal clinic.

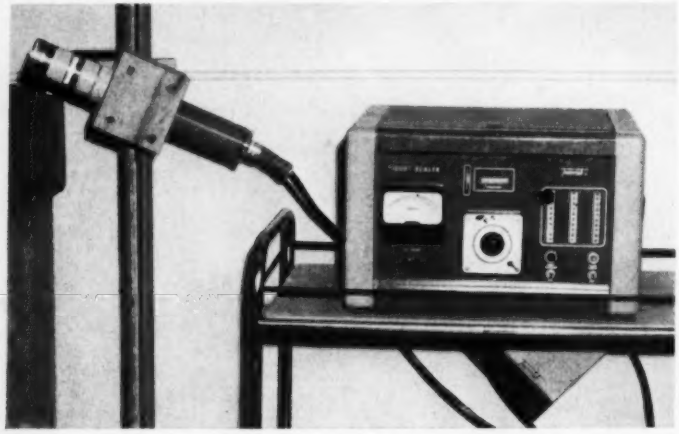

Fig. 1—Scintillation counter and scaler for measurement of I^{131} uptake in dogs.

MATERIAL AND METHODS

Normal dogs used in this study were mature pound dogs of mixed breeding. The normal control littermate and the hypophysectomized dogs were operated on and supplied by Dr. W. I. Gay of the National Institutes of Health, Bethesda, Md. Thyrotrophic hormone was obtained from Armour Laboratories. The animals studied were those received in our small animal hospital and suspected of having thyroid disorders. Serum protein-bound iodine (PBI) levels were collected in acid-rinsed tubes and were obtained only in selected subjects.* Serum cholesterol levels were determined by a

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method using the Liebermann-Burchard color reaction employing a wave length of 660 mμ.[7] All dogs except the hypophysectomized ones and their control were given a ration consisting of a commercial dog meal and raw meat as used in our small animal hospital. It was estimated that this ration provided 250 to 500 μg. of iodine per day. In those animals known to have been treated with drugs containing iodine, the test was performed at least three weeks after administration.

Carrier-free NaI^{131} was obtained from Oak Ridge, Tenn., through the Division of Radiation Safety, University of California, Berkeley. The counting equipment consisted of a Tracerlab '1000' scaler in conjunction with a Tracerlab P-20 Scintillation detector. The detector was fastened to a metal stand (fig. 1) which permitted movement in all directions. A paper tube was placed over the detector to serve as a uniform positioning device such that all counts were made at a distance of 25 cm. In use, with the dog in a sitting position and its head and neck extended, the detector was placed so that it was perpendicular to the neck over the thyroid area. The sensitivity of this equipment used in this manner was 1,000 counts per minute per microcurie (cpm/μc.).

A thyroid phantom was used to obtain a measure of the intravenuously injected dose of I^{131}[2] (fig. 2). It consists of a 25-ml. volumetric flask immersed in a 1,000-ml. beaker filled with water. The flask is positioned so that the bulb lies 1 cm. from the anterior wall of the beaker. This artificial system was found to give count rates equal to those obtained by placing the flask in the thyroid area of cadavers. An amount of I^{131} equal to that injected into the subject is placed in the volumetric flask. The flask is then filled up to the neck with water and serves as a reference standard with which later measurements are compared. The count rate of the standard in the phantom when measured at the time of injection is taken as the count rate of the injected dose.

The I^{131} is a relatively short-lived isotope (half-life = 8.14 days). Therefore, it is necessary to correct for radioactive decay of the reference standard when subsequent measurements are made. The correction for decay is made by multiplying the net count rate of the reference standard by the decay factor for I^{131}.[2] The appropriate decay factor includes the time interval between injection of the isotope and the time when measurements are made. This correction, however, can be eliminated by counting the reference standard whenever later measurements are made.

In order to correct gross neck count rates by subtracting body background count rates, several dogs were thyroidectomized and given I^{131} intravenously. Various areas of the body were counted on three successive days and related to neck counts determined at the same times. It was found that counts made over the thigh just above the stifle joint with the detector placed perpendicular to the lateral surface were most reproducible. The mean neck to thigh ratio of gross count rates was 1.1 To obtain the body background, the thigh count was multiplied by the factor of 1.1

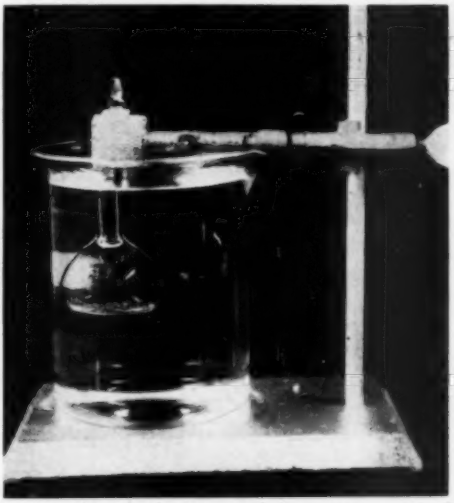

Fig. 2—Thyroid phantom used for measurement of the injected dose of I^{131} in dogs.

From the measurements and by applying the appropriate factors, the percentage of I^{131} uptake can be derived at any time postinjection by applying the equation:

$$\text{Percentage uptake} = \frac{(\text{neck cpm}) - (\text{thigh cpm} \times 1.1)}{(\text{net standard cpm})\ (\text{decay factor})}$$

Gross neck and thigh counts are used since subtraction would automatically remove the background contribution. The procedure as it is now being used routinely in our laboratory is as follows:

1) Approximately 100 μc. carrier-free NaI^{131} is first diluted to 4.0 ml. with sterile isotonic saline solution.

2) A reference standard is prepared by transferring a 2-ml. aliquot of the solution into a 25-ml. volumetric flask. The phantom is prepared as described above and its count rate measured.

3) Another 2-ml. aliquot of the solution is injected intravenously into the subject within a few minutes after counting the phantom.

4) At 24, 48, and 72 hours postinjection, external counts are made over the thyroid area of the neck and over the thigh.

5) The percentage uptake is then calculated for each of these periods.

In its simplest form, the test can be performed by measuring the uptake at 72 hours postinjection. In addition, however, measurements of the uptake

*The authors thank Dr. S. Lindsay, University of California Medical School, San Francisco, for the inorganic PBI determinations.

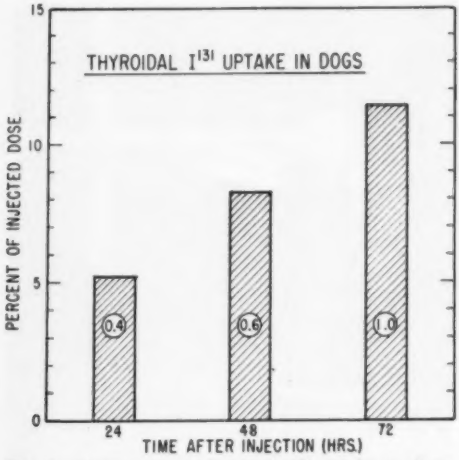

Fig. 3—Mean values for normal I^{131} uptake in dogs. The encircled figures are standard deviations of the means.

at 24 and 48 hours were performed in order to obtain further information on the metabolism of I^{131} in the dog.

RESULTS AND DISCUSSION

The data collected (table 1) indicate that in the dog maximum uptake is attained at about 72 hours postinjection. This finding is in agreement with previously reported values,[6] and in marked contrast to man in whom maximum uptake is generally observed at 24 hours.[14]

The mean percentage I^{131} uptakes observed in 8 normal dogs are shown (fig. 3). The serum cholesterol values in these dogs ranged from 112 to 280 mg. per 100 cc. It is interesting that the I^{131} uptake values obtained in this study are approximately one third of the values previously reported.[6] This finding is most likely attributable to a higher dietary iodine intake among the dogs given our kennel ration. As a result of these preliminary observations, together with values presented by others,[6] tentative diagnostic criteria were established as a basis for the interpretation of this test in dogs. Interpretation of the percentage I^{131} uptake observed at 72 hours was as follows: 0 to 10 per cent, indicative of hypothyroidism; 11 to 40 per cent, normal; 41 to 100 per cent, indicative of hypothyroidism.

TABLE 1—The Influence of Time on I^{131} Uptake in Normal Control Dogs

Time (hr.) after injection	24	48	72	96	120
Dog 1	5.2	13.9	22.7	22.4	20.0
Dog 2	3.8	8.6	8.8	8.4	....

As more data on clinical hypothyroidism become available, overlapping or equivocal areas of uptake may become evident and should be considered in the interpretations. Uptakes which do not establish a diagnosis or are at variance with the clinical appraisal have been observed in man.[10] In the present study, the uptake figure for the hypophysectomized control dog before TSH was well below the normal limits (table 2).

TABLE 2—The Effect of Hypophysectomy and Administration of Thyrotrophic Hormone (TSH) on the I^{131} Uptake in Dogs at 72 Hours

Animal	Age (mo.)	Sex	Before TSH	After TSH
Normal littermate*	5	F	2.9	10.3
Hypophysectomized* 1	4	F	0	1.4
Hypophysectomized* 2	5	M	0.9	4.7

*Beagle dogs; surgery was performed four weeks prior to the initial I^{131} uptake tests.

This dog showed no clinical evidence of hypothyroidism. However, since the hypophysectomized and control dogs did not eat the ration provided, a cat food containing fish was used. This may well have depressed the I^{131} uptake.

Three weeks after the initial I^{131} uptake studies, each dog was given 10 units of TSH intramuscularly 30 minutes prior to the I^{131} uptake test. The figures presented in table 2 indicate that the thyroid glands in these dogs were responsive to TSH administration. Conversely, in animals with a primary functional disturbance of the thyroid, little or no response could be expected following TSH administration. Dogs 17, 63, 415 (table 3) exhibited primary hypothyroidism and provided an indication that TSH administration can be of clinical value in differentiating primary hypothyroidism from pituitary hypothyroidism in dogs. Unfortunately, dog 948 died before the TSH test could be made.

Data (table 3) were obtained in a series of animals tested by use of the I^{131} uptake technique. The uptake values in the dogs which exhibited primary hypothyroidism provide an indication of the correlation between the percentages of I^{131} uptake and the disease. Histologic or post-treatment

TABLE 3—I^{131} Uptake in Dogs with Various Disease States

No.	Diagnosis	Breed	Age (yr.)	Sex	Cholesterol (mg./100 cc.)	PBI (μg./100cc.)	I^{131} uptake (%)
63	Hypothyroidism	English Cocker	8	F	540	2.7	1.0
63[4]	Hypothyroidism	English Cocker	8	F	....	....	2.3[1]
17	Hypothyroidism	Dachshund	4	F[2]	230	4.9	0
17	Hypothyroidism	Dachshund	4	F	....	....	0[1]
415	Hypothyroidism	English Setter	7	F	320 276	4.7	0
415[5]	Hypothyroidism	English Setter	7	F	....	....	0[1]
948[6]	Secondary hypothyroidism	Boxer	10	F[2]	300	2.2	32.0
948	Secondary hypothyroidism	Boxer	10	F	356	....	6.7
188[7]	Open	Dachshund	8	M	340	....	60.0
496	Chronic peritonitis	German Shepherd	4	M	260	....	30.8
577	Open	Irish Setter	2½	M	200	....	27.5
42	Open	Dachshund	3	F	300	7.7	12.6
42	Open	Dachshund	3	F	....	....	15.6[1]
509	Open	Hound	4	F[2]	280	....	16.5

PBI = protein-bound iodine; [1]after 10 units TSH; [2]ovariectomized or panhysterectomized; [3]obtained on two successive days; [4]clinical symptoms disappeared after thyroid medication; [5]thyroid biopsy: almost no recognizable thyroid tissue; [6]necropsy: pituitary adenoma; thyroid—acini almost devoid of colloid, epithelium tall, columnar; [7]necropsy: thyroid—no recognizable abnormality.

observations in these dogs also lend further support to the clinical applicability of the I^{131} uptake test. In the present investigation, dog 188 had an elevated I^{131} uptake. Three months later, the serum cholesterol in this untreated dog had fallen to 122 mg. per 100 cc. These findings could well be due to the presence of a hyperactive thyroid gland. Hyperthyroidism, although seldom observed in dogs, has been previously reported.[9]

Of special interest was the observation that 2 hypothyroid dogs, 17 and 415, had no uptake of I^{131} but had levels of PBI and cholesterol which were not markedly abnormal. Dog 415, on biopsy, showed bilateral diffuse fibrosis and atrophy of the thyroid glands. Such a clinical case could well have been misdiagnosed without the performance of the I^{131} uptake test.

The data presented illustrate that the I^{131} uptake test shows definite promise in the assessment of thyroid function in canine medicine. The high incidence of thyroid abnormalities in dogs observed at necropsy[4] would suggest that much canine thyroidal insufficiency goes undiagnosed.

SUMMARY

A procedure is described for performing the I^{131} uptake test in the dog, which involves the use of intravenously injected Na I^{131}, a scintillation detector, and a scaler. The I^{131} uptakes were measured in normal dogs and in dogs with thyroid disease, and tentative diagnostic criteria were established. Interpretation of the percentage I^{131} uptake observed at 72 hours was as follows: 0 to 10 per cent, indicative of hypothyroidism; 11 to 40 per cent, normal; 41 to 1,000 per cent, indicative of hyperthyroidism.

The effect of thyrotrophic hormone (TSH) administration on I^{131} uptake is also evaluated in hypophysectomized dogs and in selected subjects. The results indicate that the TSH test can be of value in differentiating primary hypothyroidism from pituitary hypothyroidism in dogs.

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Idiopathic Thrombocytopenic Purpura in a Dog—A Case Report

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Mishawaka, Indiana

IN OCTOBER, 1957, a well nourished, spayed female Basenji, 4 years old, was examined because of a history of incoordination of five days' duration and two instances in which she would constantly circle for several minutes, fall over, lie quietly, and then shiver. The owner reported that appetite had been normal but that she was generally listless. Examination revealed a normal body temperature, slight ocular discharge, and slight scleral icterus. There were petechial hemorrhages throughout the buccal mucous membranes, the medial surfaces of the thigh, and on the abdomen. The dog had an unsteady gait. A tentative diagnosis of purpura hemorrhagica of unknown cause was made and the animal hospitalized for further studies.

Fecal analysis revealed the presence of tapeworm segments. Urinalysis was negative for abnormal findings. A complete blood count revealed the following: red blood cells (r.b.c.)—5,120,000 per cubic millimeter; leukocytes—10,500 per cubic millimeter; hemoglobin—14.2 Gm. per 100 cc.; polymorphonuclear leukocytes—83 per cent (nonsegmented 4%, segmented 79%); eosinophils—2 per cent; lymphocytes—12 per cent; monocytes—3 per cent. Platelets appeared to be absent; the mean diameter of the r.b.c. was 6.6μ, and they were slightly anisocytotic and polychromatic.

Treatment for purpura was started with the use of 1 tablespoon of an oral vitamin preparation* given three times daily and the injection of 1,000 μg. of B_{12} and 2 cc. each of liver and B complex. The animal responded to this treatment as evidenced by an increase in over-all strength; little change was seen in the clearing of the petechial hemorrhages. On the third day after admittance, it was walking normally and was then treated for tapeworms. It was discharged on the fourth day and appropriate vitamin and hematinic medicaments were dispensed for home use. Two weeks later, the petechial hemorrhages had completely cleared and the dog had regained full strength.

Two months later, the petechial hemorrhages and a generalized weakness recurred. At this time, blood analysis again revealed an absence of thrombocytes or platelets. The condition was then tentatively diagnosed as thrombocytopenic purpura of an idiopathic origin or, as described in medical literature, "Werlhof's disease."

Three weeks following the second attack of purpura, the dog was again returned with the repeated history of listlessness, incoordination, and a pronounced anemia. There were 3,400,000 r.b.c. per cubic millimeter and platelets were absent. Whole blood (500 cc.) was administered and the subject was greatly improved by the next day. A splenectomy was advised but the owner declined. The animal was discharged and a prescription was written for oral corticosteroids but it was never filled or used.

The authors are small animal practitioners in Mishawaka, Ind.

*C.V.P. with vitamin K, is produced by U.S. Vitamin Corp.; 1 teaspoonful provides approximately 100 mg. citrus bioflavenoid compound, 100 mg. ascorbic acid, and 0.66 mg. menadione (vitamin K).

Eleven days later, the dog suffered a severe relapse during a 24-hour period and another whole blood transfusion was administered. The owner then gave permission for the splenectomy and after two days of preoperative preparation, the splenectomy was performed. The animal died seven hours after surgery after regaining consciousness.

On necropsy, the abdominal cavity was free of blood. The spleen appeared normal in size, and was submitted for sectioning. The histopathological report** was as follows:

> This spleen meets the type of histology observed by several workers in human thrombocytopenic purpura. There is a marked proliferation of endothelial cells which pack the splenic pulp, a feature mentioned as occurring in Werlhof's Disease. This is the prominent change in this spleen. Some areas show germinal center proliferation with increase of megakaryocytes, but this feature is not generally present throughout the splenic tissue. Hemorrhages into the pulp are absent. These are of sufficient size to be observed grossly when subcapsular in location.

DISCUSSION AND CONCLUSIONS

Thrombocytopenic purpura, or Werlhof's disease, refers to purpura which is accompanied by a significant reduction in the platelet count. In the bone marrow, the number of megakaryocytes is normal or may even be increased; however, few or no platelets are found about their margins. The disorder is thought to be caused by: (1) a decreased rate of formation of platelets from megakaryocytes as the consequence of splenic inhibition; (2) platelet destruction by the spleen; or (3) a combination of both. There is prolonged bleeding time due to failure of the capillaries to retract, as well as by the lack of sufficient platelets to initiate coagulation.

The syndrome is such that it may begin abruptly and disappear spontaneously. The bleeding may be mild with perhaps inconspicuous spots in the skin, or it may be more severe with heavy loss of blood in such areas as the cranium or diaphragm with all variations in between. Mucous membrane hemorrhages are common. Bleeding may occur from body orifices, and anemia, if present, is proportional to the amount of blood lost. The spleen is not necessarily enlarged. Leukocyte counts are usually normal.

Platelets in transfusions have limited value since platelet survival tends to decrease progressively when repeated transfusions are given. The use of adrenocorticotrophic hormone and cortisone is often associated with a decrease in symptoms. These effects, however, are sometimes temporary and often only useful in the management of hemorrhagic emergencies and in the preoperative preparation of subjects for splenectomy.

Idiopathic thrombocytopenic purpura (ITP) must be differentiated from symptomatic or secondary purpuras caused by such varied things as arsenicals, gold salts, benzene, quinine, ergot, bismuth, iodine, sulfonamides, streptomycin, certain foods, snake venoms, insect bites, extensive burns, x rays and other radiations, leukemias, septicemias, and bacterial endocarditis.

Since this is a case report, no extensive effort was made to determine whether or not this condition had been reported previously in veterinary literature. Our studies, however, of the literature[1-4] on ITP in man and the observations made in this case offer the following conclusions with the hope that ITP may be more easily recognized and that veterinary literature on ITP in dogs will be supplemented with further reports.

Idiopathic thrombocytopenic purpura occurs as acute and chronic types with the chronic type predominating in the mature or older individuals.

Corticosteroids if given in sufficient dosages are often capable of inducing a normal platelet count in most cases of ITP whether acute, chronic, or in relapse after a previous splenectomy. Prednisone seems to be more effective in reducing recurrences than either ACTH or cortisone.

Once it is established that relapses of ITP are occurring, it may be possible to prevent recurrences by the daily administration of small doses of prednisone; this will often cause a striking rise in the platelet count in a short time (av. of 9-16 days in man.)[2] It is possible to withdraw the prednisone entirely, after establishing a platelet count of one-third to one-half normal levels, and then to begin therapy again if symptoms of ITP reoccur:

The use of the oral vitamin preparation was definitely beneficial in this case but

**By Dr. Arthur L. Delez of Purdue University.

not sufficient in itself to prevent recurrences.

The need for whole blood transfusions is determined by visual observation of the oral mucosa or by r.b.c. count, the absence or presence of platelets, and the general condition of the subject.

Splenectomy should be reserved for those animals in which it is obvious that recurrences cannot be prevented by the use of corticosteroids, but this not an effective treatment. One writer[1] states, "In general one might say that the treatment of ITP has never been satisfactory and there is no criteria available whereby one can be assured that any specific program of treatment will result in the cure of the disease of a given patient."

References

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[3]Watson, E. J., Williams, M. B., MacPherson, A. I. S., and Davidson, Sir Stanley: Review of 93 Cases. Lancet, *2*, (1958): 221-226.

[4]Wintrobe, Maxwell M.: The Purpuras. In "Clinical Hematology." 4th ed. Lea & Febiger, Philadelphia (1956): 822-865.

Cat Diseases Preventable

Two highly contagious cat diseases, enteritis and pneumonitis, continue to be major problems in veterinary hospitals, boarding kennels, humane shelters, and pet shops. They are preventable, but prevention depends on sanitation, isolation, and vaccination.

Effective sanitation requires physical cleaning and scrubbing and painting. Chemical disinfectants are helpful adjuncts but not substitutes and they may be dangerous to cats. Chlorine solutions are satisfactory and safe.

Handlers should not work with both sick and healthy cats without cleaning up and changing clothes between times.

Unless feed and water dishes are disposable, they should be oven baked or boiled before reuse. Chemical sterilization is not reliable.

Cat runs should be avoided; surveys show that they contribute to spread of diseases.

Cats should be isolated from one another, with dogs placed in cages between them.

Vaccinate early so that protection can develop in advance of possible exposure.—*J. J. Fishler at the Symposium on Health of Small Animals, Chicago, July, 1959.*

Equine Paralytic Myoglobinuria

Paralytic myoglobinuria of the horse (azoturia) is considered to be a serious metabolic disease plus a disturbance of the neurohormonal regulation. It most frequently affects 5- to 8-year-old draft horses when first worked after a day or more of rest during which their feed was rich in carbohydrates. Younger animals on certain rations such as turnips may also be affected. It is believed that stress conditions (cold, days of rest) result in a release of adrenalin and in biochemical changes similar to an alarm reaction.

Therapy used with good results at the University Clinic, Leipzig, included: "blood letting," local thermotherapy, sedatives, hypertonic sodium sulfate solution, and alkali therapy (1-5% sodium bicarbonate) intravenously.—*J. A. Schulz in Monatsh. f. Vet.-med. (Aug. 1, 1959)*: *466.*

Renal Coccidiosis in Horses

Coccidia were found, histologically, in the epithelium of the renal tubules in 2 horses in Poland. They were of the Eimeria species and in the nonsexual multiplication (schizogony) phase. They seemed to represent a new species.—*T. Zulinski in Die Vet.-med., 12, (1959)*: *297.*

Coccidiosis in Kangaroos

Within a six-week period in Australia, 9 of 11 pet kangaroos, a few months to 2 years old, kept with 2 wallabies, died of coccidiosis. Some which seemed healthy at night were dead in the morning while others were listless and had an intermittent, blackish, foul-smelling diarrhea for up to three days before death. The 2 remaining kangaroos were affected but recovered after being fed commercial chicken mash containing sulfadimidine. The 2 wallabies showed no signs of disease.—*H. Winter in Austral. Vet. J. (June, 1959)*: *301.*

The Problem of Allergy in Dogs

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IMMUNITY, ALLERGY, and anaphylaxis are related to each other. They develop from the same body processes, yet each affects the body quite differently. Immunity protects, allergy annoys, and anaphylaxis can kill.

As the animal body continually is exposed to microorganisms, it develops new immunities and renews its old ones. Since this is a manufacturing process, there are various grades of "products" as well as a certain percentage of errors. Ideal immune bodies are bivalent; that is, they are active at both poles. They can be visualized as elongated bodies with a magnet on each end, having the faculty of attaching themselves to the specific microorganisms against which the immunity has been produced. In this way, a large number of immune bodies will attach to a large number of organisms and to themselves to form a huge clump. Thus encumbered, the organisms can be destroyed more readily. The process is similar to putting marbles into a sack. When they are held together it is easy to grasp many marbles, but if they become scattered and have to be picked up one by one, their collection is much more difficult and takes longer.

Immunity is always specific; e.g., immunity against tetanus protects against tetanus, and those immune bodies will act only in that disease.

Anaphylaxis is always specific, too, although man must have intervened. The anaphylactogen must have been introduced into the body earlier and have entered other than by mouth. Usually it is injected, as in the case of tetanus antitoxin.

The prime defense mechanism against invading microorganisms is phagocytosis. If there is no immunity, the microorganisms are scattered singly and have to be picked up one by one. If there is immunity, these organisms, through the bivalent immune bodies, are gathered together so that one phagocyte can engulf a large number of organisms. This serves to multiply the effectiveness of each phagocyte and, therefore, to greatly augment the defense mechanisms of the body. These bivalent units are the prime immune bodies. However, there are some immune bodies that are not quite as effective. These are monovalent, but still have the faculty of attaching to one specific microorganism. Monovalent immune bodies are not as effective as the bivalent ones, because they cannot form large clumps. They attach themselves to the invading microorganisms much as a ball and chain is attached to a prisoner, and in the same manner, impede the microorganism.

There is a small group of immune bodies which are bivalent, but have one affinity for invading materials and one for a specific body tissue. They attach themselves to such tissues as the lung or the skin. They are sessile or attached bodies, and by acting as a bridge between a specific organ in the body and an invading foreign material, they produce allergy. The specific organ to which they attach is the shock organ. For example, the skin is the shock organ for hives and the lungs are the shock organ for asthma.

Thus, allergy is immunity gone wrong.

This sessile attachment acts as a link between a specific invading agent and a specific part of the body. A protein is needed to stimulate immunity. Since allergy is a form of immune reaction, one might ask how such drugs as quinine or hycodan can cause allergy. There are many theories, but the heptan theory is preferred. This postulates that there are semi-immune bodies (heptans) built up within the body and these attach to the hycodan, for example, making it part of a protein radical. In this way, there is a protein to produce the quasi-immune reaction of allergy. The immune body causing allergy is called a reagin.

The management of allergy might be explained better by a hypothetical case: An animal is examined because it suffers from severe dermatitis. Is the dermatitis

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Adapted from an address given at the Fifty-Second Annual Meeting of the Alabama Veterinary Medical Association at Dothan, Ala., March 15-17, 1959.

due to an allergy? If so, what is the allergy and what can be done to help? There are many good clues, and diagnosis is a little like a treasure hunt—you go from clue to clue until the answer is found. The first thing to consider in any investigation of allergy is pruritus; if there is a complete absence of itching, probably there is no allergy. If there is pruritus, a diagnosis of allergic dermatitis is feasible. The skin is the most frequent shock organ from a clinical standpoint.

The production of eosinophils is stimulated in the presence of allergy, so this is a useful diagnostic tool. Two diseases generally believed to produce a rise in the eosinophil count are allergy and parasitic infestation (interestingly, there is much to indicate that parasitic infestation is in part an allergic state). The differential leukocyte count will normally show eosinophils of about 5 per cent, often less. In allergy, it is not unusual to find an eosinophil count of nearly 30 per cent, and it is fairly common to see a count of 15 per cent. In the presence of a high eosinophil count, we then search carefully for parasites—intestinal parasites, ectoparasites such as fleas, and hemoparasites such as filaria.

If the eosinophil count remains high after removal of parasites, we consider the allergy to be due to some other cause. Normally, nasal secretions do not contain many eosinophils. In allergy, there is frequently a serosanguineous discharge from the nasal passages. If this discharge is collected on a slide and stained and examined in the same manner as a blood smear for a differential count, it will show, in the presence of allergy, a significant number of eosinophils.

By this time, the clinician should have a firm opinion as to whether the patient is allergic. The search is now directed to finding the specific allergin. Since the most common allergin is food, it should receive first attention.

TESTING FOR ALLERGY

The best way to test for food allergy is to select a diet that is palatable and digestible but will not cause allergy. One such diet can be made up of rice and lamb. Lamb is chosen because it is seldom fed to animals in this country, and therefore would rarely be an allergin. As a test, the patient is fed only this diet plus drinking water for one week. This is usually enough time, because with the removal of the allergin, the response of the patient is quite dramatic. If, during the test period of about three or four days, the animal is found to be relatively free of clinical signs, food allergy can then be presumed. Then the problem is either to provide a restrictive diet that will be free of allergins, or to add the animal's normal dietary components to the allergy free diet one by one until the proper food or foods have been incriminated. Some of the foods that will frequently cause allergy in dogs are cows' milk, eggs, chocolate, and processed foods such as spiced meat, horsemeat, fish, gluten, malt, and cookies. It is surprising how many dogs are fed cookies and how many are allergic to them.

The other general group of allergins is comprised of those which are produced by contact. Prominent among these is dust. The animal's habit of getting under beds and in corners exposes it to a high dust concentration. These "environmental" allergins are easily demonstrated by transferring the patient to a new location, such as a hospital, for a few days. A prompt reduction of signs would point to allergy due to factors in his home environment. In all of this "trial and error" testing, only one change is made at a time, and the response to that change is evaluated before going on to another.

In human medicine, specific laboratory allergins can be applied to the serum of the patient to determine the presence of allergy, the degree of allergy, and the specific offenders. There seems to be a considerable problem in substituting animal blood for human blood, however, so that these tests, although sometimes instructive, cannot be relied upon to be accurate. There is room for great advancement in this field, and specific research toward solving these problems is under way.

INFECTION A PREDISPOSING FACTOR

One frequent predisposing factor in allergy is infection. Infection in the body will serve to increase the degree of, or potential for, allergy. Illustrating this is the fact that a cow will have an allergic reaction to tuberculin if there is tuberculosis infection in its body. This is the basis for the test that has been dependable enough to control one of the livestock scourges of this nation. To a less degree, infection in the body will

cause various allergies to be more prominent.

There are two ways of dealing with this problem. In our experience, the organism usually causing the trouble is one that has become resistant to ordinary antibiotics. Super-saturating the patient with antibiotics has not been rewarding. Laboratories in Miami seem to have readily available what is called a "strep and staph vaccine" that apparently is made quite inexpensively. It is prepared from cultures and contains the usual resistant organisms such as *Staphylococcus aureus*. A course of vaccination with this bacterin is frequently quite helpful. If, for any reason, it is decided that the stock bacterin may not be sufficient, an autogenous vaccine can be made. All that is required is a smear containing the organism in question. These are cultured and a vaccine prepared.

The standard procedure for vaccination is to start with a small dose, 0.1 cc., and increase it to 0.2, 0.3, 0.4, 0.5, and then to 1.0 cc. Injections should be given about twice weekly. We frequently increase the dose more rapidly using a dose just small enough that it does not cause distress or sickness. After the immunity has been built up, it will need to be stimulated periodically. We use the recurrence of clinical signs as an indication that vaccination is needed.

CASE REPORT

Consider, for example, a Miniature Poodle whose owners live in Miami in the winter and New Jersey in the summer. It developed a severe halitosis which had not responded to treatment given at each of these cities. From specimens sent to a laboratory, it was learned that it had an oral infection due to symbiosis between Proteus and Pseudomonas which, according to sensitivity tests, was resistant to almost every antibiotic except the nitrofurantoins. Its mouth was painted every six hours with nitrofurazone (Furacin*), and she was given 50 mg. of nitrofurantoin (Furadantin*) orally four times daily.

She seemed to respond to treatment, but within two or three weeks, the infection had returned. A pure culture was obtained from a specimen taken from the gum line, and from this an autogenous vaccine was prepared. She was vaccinated twice weekly with 0.1, 0.25, 0.5, 0.75, and then 1.0 cc. With 1.0 cc., it was sick for the next half day, so the optimal dose appeared to be 0.75 cc. Its condition improved considerably, and it was given injections about every one to two months.

This is a particularly good case to cite, because the halitosis provided an excellent indicator of the effectiveness of our treatment. In addition, the dog was under the care of other veterinarians, each working independently but in cooperation with the others, so that appraisal of the results was free of bias.

CONCLUSION

One thing that serves to differentiate allergy from anaphylaxis (and makes the former much more difficult to treat) is that anaphylaxis is self-limiting, with a duration of about six months, while allergy will often endure for life and is certainly not self-limiting in most cases. Whereas desensitization to anaphylaxis is fairly easily accomplished, desensitization to allergy is most difficult, often incomplete, and often not of long duration.

*Furacin and Furadantin are produced by Eaton Laboratories, Norwich, Conn.

Irradiation Plus Marrow Infusion

The inevitable result of high-dosage irradiation for the treatment of such conditions as cancer is bone marrow damage. Two cases were reported where, under local anesthesia, bone marrow was aspirated from both iliac crests and the sternum, and stored at −79 C., prior to the irradiation therapy. After the course of irradiation therapy had been completed, the marrow was thawed and injected intravenously. Within two to four weeks, there was evidence of marrow regeneration. There were no immediate ill effects.—*J.Am.M.A. (May 2, 1959): 105.*

Canine Coccidioidomycosis from Nicaragua

A male Boxer 5 years old was found to have disseminating coccidioidomycosis while in quarantine after arrival by airplane from Nicaragua. The condition was diagnosed at necropsy, following euthanasia, when the dog failed to respond to treatment.—*K. Nordstoga et al. in Nord. Vet.-med. (July-Aug., 1959): 461.*

The Cow Pool Idea and Its Future

Guest Editorial

Drop the words "cow pool" into a circle of dairymen and their veterinarians these days and watch the interest that mushrooms from this controversial bomb! This new concept in dairying sprang up so suddenly that most people are not aware of its significance.

What Is It?

Essentially, a cow pool is an arrangement for feeding, milking, and caring for many herds of dairy cows in one central location. It could also be termed "custom dairying." It may be considered a phase of the revolutionary change which the dairy industry is undergoing as a result of modern technology and science.

How Does It Operate?

Usually a formal contract is drawn up as a basis of cooperation between the management of the cow pool and the individual dairyman to feed, milk, house, breed, and care for the entire milking herd or any part of it. Such a contract usually spells out in detail the terms of management, and specifies the yearly or monthly fee for housing, equipment, and other facilities. It also provides for assessing costs of feed, labor, breeding, veterinary service, DHIA testing, and other miscellaneous charges against the individual animal or herd. These costs are then deducted from the proceeds from the sale of the milk.

Because of the newness of the cow pool idea, there are no hard and fast rules by which one can evaluate the possible returns which may be realized under such a program. However, there are certain advantages and disadvantages to be considered.

Cow Pool Attractions

Probably the most important incentive to the dairy farmer is the possibility of "upgrading" from a class B or ungraded market to a class A market, without having to provide costly facilities and equipment.

The new idea interests the grade A commercial dairyman who wants to get bigger without investing in additional buildings or equipment.

Savings through bulk buying of feed and supplies may be realized in large herd operations. Greater labor efficiency can result through the handling of more cows per man and it will free farmers and their families from the part of dairying which ties them down to a regular routine of milking twice every day of the year.

Cow Pool Hazards

Health, sanitation, management, and feeding problems take on major importance when cattle are assembled in large numbers from many sources. These problems may be easily and effectively controlled in small herds, but may be limiting factors in the performance of cow pool animals.

Traffic in and out of the pool and heavily populated lots and sheds means that diseases such as mastitis, leptospirosis, brucellosis, pinkeye, shipping fever, cowpox, foot rot, and parasitism have an opportunity to spread rapidly.

The roughage program is another key factor in the success or failure of a cow pool. If the roughage supplied is of uniformly good quality throughout the year, then milk yields may be maintained. On the other hand, if the cow pool runs through a series of different kinds of roughage of varying quality, milk production is certain to drop.

Sanitation, removal of manure, fly control in the summertime, obtaining and holding satisfactory labor, and handling of dry and fresh cows present additional obstacles to management. How well these problems are handled will determine the level of performance of cows in cow pools and consequently, success or failure of the venture. If the advantages of upgrading of the market and more efficient use of labor are offset by seriously reduced performance of the animals, then the venture is doomed to failure.

Future of the Cow Pool Idea

There are many large dairy enterprises now operating successfully, and the number will increase, but I do not think they will be cooperative cow pools as we know them today. Cow pools now in operation,

and those that spring up in the future, will eventually take the form of private enterprises or investment corporations where management has complete control over the investment. I believe these changes will take place and the enthusiasm for the present cow pool idea will wane for the following reasons:

1) Disease control is made much more complex under the cow pool operation. It can be handled more effectively in a closed herd-type of operation.

2) Production and productive lives of cows will be lowered because of increased complexity of disease control, feeding, sanitation, and management.

3) It is unlikely that cow pool operators will be able to satisfy 50 to 75 farmer-owners concerning management of their cattle.

4) Most dairy farmers will find it difficult to compare net income with previous much larger gross receipts.

5) An accurate, understandable accounting of income and operating expense to participating owners will be a real problem.

Considering the reasons mentioned above, and the fact that a cow must produce approximately 8,000 lb. of milk to pay her expenses, I doubt seriously that many farmers will risk the hazard of investing 10,000 to 14,000 lb. cows in a cow pool.

Whether the cow pool idea catches on, I feel certain that dairy enterprises will increase in size and that veterinarians on an emergency basis will no longer be needed by large dairy operators. Accompanying these changes will be a demand for veterinarians with training and experience in management, nutrition, and preventive medicine. Our profession must be able to provide these services, or others will gladly attempt to take over these important basic veterinary functions.—*N. B. King, D.V.M., Ph.D., Wooster, Ohio.*

Disease in a "Cow Pool"

A "cow pool," established in August, 1958, accepted cows with only a brucellosis and tuberculin test. Many of the cows were found to have mastitis. Now, new cows must have a health certificate from the local veterinarian, and they are kept separate from the other cattle until reexamined by the pool veterinarian. Apparently many of the first consignors were "submarginal" dairymen.—*J. B. Herrick in A. I. Dig. (June, 1959): 20.*

Economics of a Cow Pool

The probability of the "cow pool" system developing in the New England states was analyzed. Estimates are based on the performance of a moderately good cow producing 9,500 lb. of milk annually (the Rhode Island average is less than 8,000 lb.). They show that if a cow initially costing $400 is sold in four years for $200, and is dry three months each year, she would cost the owner $75 a year in interest and depreciation and $60 for feed during the three months she is not in the pool. About $15 can be deducted from this $135 for the sale of the calf. Thus the cost to the owner would be $120 per year per cow. However, based on an average price of $5.75 per 100 lb. of market milk, the income paid the owner by the pool operator would be only $117, a loss of $3 per cow per year. A cow milking for ten months and producing 10,000 lb. of milk would show a profit.

If cow pools succeed in the Midwest, it will be because the pool operator can produce market milk rather than having to take manufacturing milk prices.—*R. I. Agric. (Summer, 1959): 4.*

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Investors now own about 80 per cent of the cows in the original dairy cow pool in Iowa. Farmers are dropping out of the venture. Cow pools are probably here to stay but there is little danger that dairying will follow the same integration pattern as broilers and eggs. The life cycle is longer, and dairying takes too much know-how and capital.—*Farm J. (Aug., 1959): 20.*

Current Literature

Abstracts

Route of Entrance of Hog Cholera Virus

In these experiments an attempt was made to determine more specifically the means by which the virus of hog cholera gains entrance into the swine's body. The inability of hog cholera virus to infect through the stomach wall was established by administering the virus in double gelatin capsules with a balling gun. Nineteen pigs exposed to different dilutions of virus varying from 1 to 1,000,000 lethal doses by this method did not become infected with hog cholera. Twenty-one days after gastric exposure, all animals were challenged with virulent virus. All died, indicating no protective immunity had been established. Although pigs receiving 1,000 lethal doses or more of virus did not sicken at the time of gastric exposure, they did react more severely to the challenge with virulent virus than did those which received 100 or less lethal doses. This sensitizing phenomenon was characterized generally by shorter incubation periods and more severe lesions than observed in those animals which had a lesser or no previous exposure.

To clarify the importance of respiratory and tonsillar exposure with hog cholera virus, complete tracheotomies were performed on 10 pigs. Some were exposed by the tonsillar route, using a virus-infected cotton swab brushed against the tonsils. The others were exposed by aerosol, using a DeVilbiss No. 640 atomizer directed by means of a glass tube into the exposed end of the severed caudal end of the trachea, which was sutured to the ventral surface of the pig's throat. By these means, virus placed on the tonsils could not be inhaled and virus introduced into the lungs could not be exhaled past the tonsils and the upper respiratory tract. Infection was accomplished by both routes, proving that hog cholera virus taken by mouth or inhaled directly into the lungs would cause infection.—[*H. W. Dunne, J. F. Hokanson, and A. J. Luedke: Pathogenesis of Hog Cholera. I. Route of Entrance of the Virus into the Animal Body. Am. J. Vet. Res., 20, (July, 1959): 615-618.*]

Experimental Brucella neotomae Infection in Swine

Pigs were experimentally exposed to *Brucella neotomae* by the intravenous route. Infection was established in all; bacteremia was demonstrated in 2 of 4 pigs inoculated with one billion organisms and in all of 4 pigs given an inoculum of 50 billion. Bacteremia in 1 animal existed for five successive weeks and in another, *Br. neotomae* was isolated from blood culture seven weeks after exposure. *Brucella* agglutinins developed in all pigs and reached levels of 1:100 and higher. The infections were not clinically apparent; at necropsy, nine to 16 weeks after exposure, *Br. neotomae* was not isolated, although 6 animals still had agglutinins. The bacteriologic character of *Br. neotomae*, including its infectivity for guinea pigs, was not altered by residence in tissues of swine.—[*G. A. Beal, R. E. Lewis, N. B. McCullough, and R. M. Claflin: Experimental Infection of Swine with Brucella Neotomae. Am. J. Vet. Res., 20, (Sept., 1959): 872-875.*]

Cytopathogenesis of Foot-and-Mouth Disease Virus

It was found that foot-and-mouth disease virus could be grown and multiplied in fetal rabbit lung cells. Cytopathogenic changes were observed 24 to 30 hours following inoculation with type C foot-and-mouth disease virus.—[*L. V. Melendez: Multiplication and Cytopathogenic Effect of Foot-and-Mouth Disease Virus in Cultures of Fetal Rabbit Lung Cells. Am. J. Vet. Res., 20, (Sept., 1959): 815-818.*]

Cyanacethydrazide for Lungworms in Cattle

Cyanacethydrazide was administered subcutaneously in doses of 1 ml. per 35 pounds of body weight to 115 animals. A like number was maintained as controls. This study did not reveal any significant beneficial effects of cyanacethydrazide treatment for cattle infected with lungworms. Statistical analysis revealed no significant decrease in larvae output in treated calves. The treatment did not save the lives of animals in the later stages of the disease or alter the resultant pathology. Larvae recovered from treated calves were infective to susceptible calves. Weight gains in animals that survived an 87-day field experiment were in favor of the controls by an average of 27 pounds per head over the treated animals.—[*L. E. Swanson, A. E. Wade, V. F. Senseman, and M. I. Djafar: The Efficacy of Cyanacethydrazide as a Treatment of Lungworm, Dictyocaulus Viviparus (Bloch), Infections in Cattle. Am. J. Vet. Res., 20, (Sept., 1959): 777-783.*]

Viral Bovine Mastitis

Cows in an experimental herd were exposed by mammary infusion to 3 viruses: 6 cows were inoculated with vaccinia, 3 with Newcastle disease virus, and 8 with vesicular stomatitis virus. Eleven of the 17 cows responded with temperature elevations (all 3 viruses) and 6 with udder swelling (vaccinia and Newcastle disease virus). All of the lactating animals gave a positive modified Whiteside test and shed increased numbers of leukocytes in the milk after inoculation. There was no change in the bacterial flora of the milk from the inoculated quarters.

Virus was recovered on one or more occasions from the milk of 10 of the 11 inoculated lactating cows (20 of 22 quarters). A diagnostician probably would have diagnosed these cases as idiopathic

mastitis on the basis of the modified Whiteside test, the leukocytes counts, and the bacterial cultures.

It is unlikely that the viruses employed in the study contribute materially to naturally occurring mastitis in the United States, but other viruses of cattle, some not yet identified, may play a significant role in the bovine mastitis complex.—[*B. C. Easterday, R. P. Hanson, and J. Simon: Experimental Viral Bovine Mastitis. Am. J. Vet. Res., 20, (Sept., 1959): 819-824.*]

Goat Serum Proteins

Electrophoretic and chemical studies of normal goat serums were conducted to determine normal distribution, concentration, and mobilities of respective serum protein components. Mobilities of the *alpha* and *beta* globulin fractions were found to vary from those encountered in humans. Three-fraction separation in the globulin component was found to occur in the majority of electrophoresis patterns. Limited appearance of *beta*-2 globulin in female goats was noted, which concurred in part with the contention of earlier workers employing chemical salting out procedures. Studies were made of normal ranges of protein components and variations from group means encountered according to sex of the animal.—[*L. R. Gorczyca, R. T. McCarty, and J. M. Limon: Studies of Goat Serum Proteins by Paper Electrophoresis. Am. J. Vet. Res., 20, (Sept., 1959): 921-924.*]

Experimental Brucellosis in White-Tailed Deer

Two adult male white-tailed deer (*Odocoileus virginianus*), were artificially infected via the conjunctival sac with 10 million *Brucella abortus* organisms each. Within three weeks, they developed a maintained demonstrable antibody to *Br. abortus;* this was for the duration of the experiment (approximately one year).

Two 6 month-old fawns injected subcutaneously with 5 ml. of *Br. abortus* vaccine, strain 19, showed an abrupt antibody development followed by a gradual decline.—[*W. G. Youatt and L. D. Fay: Experimental Brucellosis in White-Tailed Deer. Am. J. Vet. Res., 20, (Sept., 1959): 925-926.*]

Lysogenicity in Staphylococcus aureus

Of 85 isolates of *Staphylococcus aureus* of animal origin, 100 per cent were found to be lysogenic. The temperate phages isolated differed widely in their host range, as each phage exhibited a specific "pattern of lysis." The data indicated that immunity of a bacterial host to infection with a particular phage may be determined by the phage with which the host is lysogenized and the animal from which the host was isolated.—[*E. H. Coles and A. Eisenstark: Staphylococcic Phages. I. Lysogenicity in Staphylococcus Aureus of Animal Origin. Am. J. Vet. Res., 20, (Sept., 1959): 832-834.*]

Books and Reports

Improvement of Livestock

This textbook was prepared specifically for use by students who have some knowledge of biology, but the author hopes that the book may be useful to others. As a text, it should serve as the outline around which a good teacher could develop a satisfactory course. As a book to be used by individuals without previous, adequate training in genetics and statistics, it will be of little use. The review of the basic principles of genetics is too meager to be absorbed and understood by those who have not already studied the subject. With no previous background of statistics, much of the discussion of heritabilities and of the use of selection indexes would be ineffective. However, interspersed with the large number of formulas are interesting discussions. The author has brought together a number of good pictures.

Sometimes the author makes definite statements without giving the supporting data. For example, ". . . progress can be made in improving feed efficiency by selection for greater rates of gain, since the two are closely associated." The reviewer failed to find the values of the correlation co-efficients on which this statement was based. The value of the correlation would have to be above 0.7 to have any predictive value, even though lower values were significant; to have appreciable selection value, it would have to be above 0.9.

The book is supposed to be concerned only with beef cattle, swine, and sheep as more comprehensive works are available for dairy cattle and poultry breeding. However, some discussion is included for both. There is a good discussion of some pilot experiments of the efficiency of breeding methods conducted at the Regional Poultry Breeding Laboratory using Drosophila. The particular characters studied in these fruit flies are egg production and egg size. The author also used to advantage results from experiments with rabbits on commercially important characters.

Of particular interest to the veterinary profession are the chapters on "Genetic-endocrine interrelations" and "Inheritance of Disease Resistance." The former is too brief to be of much value. The one on disease resistance emphasizes all of the reasons breeding for resistance may be impractical, but fails to even mention the fact that in the case of leukosis of fowl, it is used effectively by the big poultry breeders.

A chapter is included on new breeds of farm animals, which extolls the virtues of Santa Gertrudis cattle and discusses Beefmasters, but does not even mention Charbray or Brangus cattle. Both of these have been bred systematically for approximately the same period as that followed in the present Beefmaster-selection program, even though the selection pressure differs.—[*Improvement of Livestock. By Ralph Bogart. 436 pages; illustrated. The Macmillan Company, New York, N.Y. 1959. Price $6.65.*]—BRUCE L. WARWICK.

THE NEWS

Veterinary Medicine on the March . . .

Two Recent Visitors

Dr. Inge Lauritzson from Sweden

Dr. Inge Lauritzson, chief veterinary officer in Stockholm County, Sweden, visited the AVMA Chicago headquarters recently as a prelude to a six-week study of the administration of zoonosis problems in the United States.

In Sweden, Dr. Lauritzson directs activities regarding the control of infectious diseases, zoonoses, public health, and food inspection. In addition, he acts as veterinary advisor to the county administration office.

Dr. Inge Lauritzson

Dr. Lauritzson stated that 700 veterinarians service the animal health problems of Sweden's 7.5 million people. Few, if any, are in private practice. The Swedish government is sponsoring his visit.

Dr. Carlos G. Clark from Mexico

Dr. Carlos Guzman Clark (MEX '58), a Mexican veterinarian, has recently completed several months of study in the University of Pennsylvania School of Veterinary Medicine's equine clinic.

Dr. Carlos G. Clark

During this period, he received additional instruction in equine surgery and medicine under the guidance of Dr. Charles W. Raker (UP '42). He is currently returning to Mexico to carry on various duties at the Hippodrome.

Electron Microscope Society of America

The seventeenth annual meeting of the Electron Microscope Society of America was of particular interest to those in the biological sciences.

The major symposium of the meeting was entitled "Contributions of Electron Microscopy of Viruses and Cells to the Problems of Cancer." This included the work of eight researchers. In addition, 30 papers were presented on thin sectioning and techniques related to morphology of normal and pathological conditions.

A separate session of ten papers was devoted to virology and related problems.

Above are grouped the 1959 planning committee for the second Veterinary-Feed Conference.

Seated (left to right)—Dr. J. K. Farrell, Boonville, Mo.; Dr. W. E. Poley, Zip Feed Mills, Sioux Falls, S. Dak., and chairman of the committee; Maurice Wells, Davenport Elevators, Waterloo, Iowa; Dr. Chase Wilson, Kansas City, Mo.; Dr. R. E. Lubbehusen, Ralston Purina Co., St. Louis, Mo.

Standing (left to right)—John Wessman, M.F.M.A.; Dr. C. M. Cooper, Veterinary Medicine Editor, Kansas City, Mo.; Dr. Cloy Knodt, Cargill-Nutrena Research Farm, Elk River, Minn.; Dr. J. C. McCrea, Platte City, Mo.; Dr. James Bailey, Walnut Grove Products Co., Atlantic, Iowa; Lloyd Larson, M.F.M.A.

Second Veterinary-Nutrition Conference to Be Held Nov. 30-Dec. 1

The second Veterinary-Nutrition Conference will be held in Kansas City, November 30-December 1, at the Hotel President. The first Veterinary-Nutrition Conference ever held was given the Distinguished Achievement Award by the U.S. Chamber of Commerce in April, 1959.

Prepared by a joint veterinary-feed committee, the program is sponsored by the Midwest Feed Manufacturers' Association in cooperation with state veterinary medical associations. Among the speakers and subjects to appear in the section of the program on animal health as influenced by management under intensified production are: Dr. Francis Wingert, Elk River, Minn.—swine; Dr. J. Russell, College Station, Texas—poultry; Conwell Johnson, livestock research associate, Indianola, Iowa—beef; and Dr. Norman Jacobson, Ames, Iowa—dairy and calves.

In a later part of the program on the relationship of nutrition to disease, the following are scheduled to appear: Dr. Ray Klussendorf, Terre Haute, Ind.—stress and disease; Dr. W. E. Petersen, St. Paul, Minn.—mastitis; Dr. William Monlux, Ames, Iowa—arthritis in swine; and Dr. Earl Baldwin, Omaha, Neb.—gut edema.

On December 1, the following will be presented: Forrest Goetsch, Doane Agricultural Service, St. Louis, Mo.—what the feeder needs from the veterinarian and feed manufacturer; Maurice Johnson, president, Midwest Feed Manufacturers' Association, Kansas City, Mo.—what the feed manufacturer needs from the veterinarian; Dr. Donald R. Mackey, Greeley, Colo.—experiences of a veterinarian with commercial feeding operations; and Dean A. H. Groth, Columbia, Mo.—training the veterinarian for tomorrow's agriculture.

National Science Foundation Graduate and Postdoctoral Fellowships for 1960-1961

The National Academy of Sciences–National Research Council has again been called upon to advise the National Science Foundation in the selection of candidates for the Foundation's program of graduate and postdoctoral fellowships. The Foundation plans to award approximately 1,100 graduate and 125 postdoctoral fellowships in these two programs during the 1960-61 academic year.

Committees of outstanding scientists appointed by the Academy-Research Council will evaluate applications of all candidates; final selection will be made by the Foundation and awards announced on March 15, 1960.

Open only to citizens of the United States and awarded solely on the basis of ability, the fellowships may be applied to advanced study in the mathematical, physical, medical, biological, and engineering sciences—including anthropology and psychology (excluding clinical psychology). The following social sciences will also be included: geography, mathematical economics, econometrics, demography, information and communication theory, experimental and quantitative sociology, and the history and philosophy of science. They are open to college seniors, graduate and postdoctoral students, and other individuals with equivalent training and experience.

All applicants for graduate (predoctoral) awards will be required to take an examination designed to test scientific aptitude and achievement. This examination, administered by the educational testing service, will be given on Jan. 16, 1960, at des-

ignated centers throughout the United States and in certain foreign countries.

The annual stipends for graduate fellows are as follows: $1,800 for the first year; $2,000 for the intermediate year; and $2,200 for the terminal year. The annual stipend for postdoctoral fellows is $4,500. Limited allowances will also be provided to apply toward tuition, laboratory fees, and travel.

Further information and application materials may be obtained from: Fellowship Office, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D.C. Deadline for the receipt of applications for regular postdoctoral fellowships is Dec. 22, 1959; and for graduate fellowships, Jan. 1, 1960.

AMONG THE STATES AND PROVINCES

California

Southern California Association Meeting.—Dr. Eugene C. Jones (WSC '24) of Long Beach, was named the Southern California V.M.A. "Veterinarian of the Year" at the Association's annual meeting in Los Angeles, Sept. 26, 1959.

Mrs. Leiland Atherton Irish, a member of the awards committee, presents the Southern California V.M.A.'s "Veterinarian of the Year" Award to Dr. Eugene C. Jones. Dr. Howard C. Taylor, president of S.C.V.M.A., is shown at right.

Dr. Jones was selected over several nominees by a special awards committee and presentation of the Award was based on his outstanding contribution both to the profession and to the community. He was the first veterinarian to build and fully equip a small animal hospital in the Los Angeles area. He was also the first to perform cesarean sections on small animals, to use the x ray in diagnosis, and to maintain a diagnostic laboratory in the hospital.

Among civic occupations, Dr. Jones is a charter member of the Rotary Club of West Hollywood, director of the Beverly Hills Building and Loan Association, and director of civil defense operations for veterinarians in the Los Angeles area.

Active in local association activities, he is also a member in the state and national associations and a charter member of the American Animal Hospital Association. He is presently hospital inspector in the western states for the A.A.H.A.

s/DON MAHAN, *S.C.V.M.A. Public Relations Director.*

Georgia

Dr. Joseph Tucker Retires After Over Half a Century of Practice.—Dr. Joseph Tucker (BER '07), 75, a small animal practitioner, retired on July 1, 1959, after 52 years of active practice.

Born in Gollub, East Prussia, Germany, Dr. Tucker attended the "Humanistisches Gynasium" in Bromberg and later the "Tieraerztliche Hochschule" Veterinary College in Berlin. Following graduation, he assisted some veterinarians for a time and then returned to Gollub for three years.

During this period, Dr. Tucker conducted a country practice which included many Russian farmers who owned 100,000 or more acres and who lived in Paris eleven months of the year. Visits to these farms were made at periodic intervals. As a rule, he would find as many as 50 horses suffering from glanders, 50 or more with strangles, several hundred cows with foot-and-mouth disease, plenty of actinomycosis, and sheep with necrotic hoof infections.

He then attended the College of Veterinary Medicine at Berne, Switzerland, for one year. Thereafter, he practiced in Creuzberg, East Prussia, for three years, moving to Breslau (then part of Germany; currently southwest Poland), where he remained for 24 years.

During World War I, Dr. Tucker served in the German Imperial Army. However, after Hitler's rise to power, he and his wife were forced to leave Germany. He arrived in the United States in March, 1938, and after a short interval opened his animal hospital in Atlanta.

Dr. Tucker speaks English, German, French, Polish, Russian, and Greek. In July, 1957, he was presented with a plaque from the members of the Atlanta Veterinary Medical Society, in commemoration of his 50th anniversary in practice (*see* the JOURNAL, Nov. 15, 1957, p. 489).

Above is pictured the presentation of the Atlanta V.M.S.'s plaque to Dr. Tucker (left) upon the celebration of his Golden Anniversary as a graduate veterinarian. Dr. John L. Christopher (middle), Smyrna, and Dr. William V. Smith (right), Atlanta, are also shown.

Dr. and Mrs. Tucker left for Europe on Aug. 14, 1959. They plan to spend about a year abroad seeing friends and visiting as many veterinary schools as possible. They intend to reside in New York after their continental tour and can then be reached at the following address: c/o Dr. Herbert Zellner, 260 W. 72nd St., N.Y.

Illinois

Eastern Illinois Association.—The fall dinner meeting of the Eastern Illinois V.M.A. was held Sept. 3, 1959, at the Hotel Tilden Hall, in Champaign.

Dr. J. M. Gillispie, River Forest, presented a talk, "The Three B's of Small Animal Practice," which dealt with ethical and technical problems encountered in the care of small domestic animals. Dr. A. K. Merriman, Sullivan, president of the State Association, was the guest of honor.

The next meeting of the Association will take place at 6:30 p.m., December 3, also at the Hotel Tilden Hall in Champaign.

S/EDWIN I. PILCHARD, JR., *Secretary.*

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Women's Auxiliary.—The Women's Auxiliary to the Eastern Illinois V.M.A. met on Sept. 18, 1959, in Champaign. Honored guest of the Auxiliary was Mrs. J. A. Smith, Waverly, president of the Women's Auxiliary to the Illinois V.M.A.

The Auxiliary's program consisted of a specially conducted tour of a local furniture showroom.

S/EDWIN I. PILCHARD, JR., *Secretary to the Eastern Illinois V.M.A.*

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Veterinary Explorer Post No. 201 Formed.—A new program for high school boys was instituted Sept. 18, 1959, in the Winnetka Community House, north of Chicago, Ill. Under the auspices of the Boy Scouts of America, the Veterinary Explorer Scout Post offers a concrete program of career guidance in veterinary medicine. Other B.S.A. Explorer Posts are created whenever or wherever an interest is expressed by boys of high school age.

In a survey conducted in New Trier Township last Spring (*see* the JOURNAL, Sept. 1, 1959, adv. p. 30) by the National Council of Boy Scouts of America, 19 boys indicated veterinary medicine as their first interest. A supplementary survey among new freshmen classes added nine more names to the list.

Sponsored by the Chicago V.M.A., eight boys attended the first meeting of the Veterinary Explorer Post No. 201. Dr. Robert E. Storm (ISC '40), Evanston, is advisor to the group; Dr. Jack R. Dinsmore (OSU '41), Glenview, is chairman of the fathers' committee; and David O. Frey (MSU '59), Glenview, associate advisor. They will be assisted by still two other Chicago V.M.A. members: Drs. Joseph R. Terry (ISC '52), Evanston; and Ralph O. Holstein (ILL '55), Evanston.

Above is shown part of a group of high school boys who belong to the Veterinary Explorer Post No. 201. Dr. Jack R. Dinsmore is pictured demonstrating some methods of muzzling dogs to avoid being bitten when attempting to help an injured animal, at his hospital in Glenview. Dr. Dinsmore and Dr. David Frey (not shown) had conducted the boys and several of their fathers through the hospital just prior to the demonstration.
Left to right—Joseph Powell, 15, Winnetka; and Peter Leisner, 14, Wilmette.

The second meeting of the group was held October 2. Officers were elected and a film, "The Veterinarian" was shown. The next several programs will also feature films as well as field trips to nearby veterinary installations.

s/BRIAN FORSTER, *Institutional Representative, Veterinary Explorer Post No. 201.*

Nebraska

University of Nebraska to Hold Swine Repopulation Conference.—Due to the great interest in "disease-free" pigs stimulated by the University of Nebraska's (Department of Animal Pathology and Hygiene) exhibit at the AVMA's Convention in Kansas City last August, the University plans to hold a conference on swine repopulation, Feb. 3-5, 1960.

Behind the University's action in presenting such a conference, is its desire to present its concept of the veterinarians' role with these disease control methods—whether he renders specialized service raising primary "disease-free" pigs, secondary "disease-free" pigs, or acts as a consultant for farmers who raise them for breeding stock or commercial purposes.

s/GEORGE A. YOUNG, *Chairman.*

New Jersey

Annual Conference for Pesticide Dealers at Rutgers.—Rutgers University's annual conference for pesticide dealers is scheduled for Nov. 24, 1959, in Blake Hall, College of Agriculture.

As usual, a feature will be a discussion of herbicides, fungicides, and insecticides recommended for next season as well as a review of the results from this year.

Pennsylvania

Dr. Kral Is Honored.—Dr. Frank Kral (VI '14) of Philadelphia was recently elected to membership in the Society for Investigative Dermatology at the Society's twentieth annual meeting in Atlantic City, N.J.

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Conestoga Association.—The results of the Conestoga V.M.A.'s elections held Sept. 18, 1959, are as follows: Drs. Loy C. Awkerman, Manheim, president; C. J. Bryer, Jr., Gap, vice-president; David S. Ingraham, Lancaster, treasurer; and Israel M. Saturen, Lancaster, secretary.

s/I. M. SATUREN, *Secretary.*

South Dakota

State Association Meeting.—The last annual meeting of the South Dakota V.M.A. was held at the Sheraton-Johnson Hotel in Rapid City, Sept. 17-18, 1959. Attendance figures included 83 veterinarians.

The Association's two-day program comprised the following speakers with their respective subjects: Drs. W. F. Waddell—A.D.E. report; M. D. Mitchell—sale barn inspection; J. H. Steele—veterinarian in public health; R. E. Pierson—range practice and feedlot problems; G. T. Easley—sterility, bull testing, and semen evaluation; C. J. York—viral diseases; and J. Williamson—feed additives.

On September 18, the following officers were elected for the coming year: Drs. Clark Andis, Arlington, president; John Noordsy, Marian, first vice-president; D. F. Rigo, Menno, second vice-president; L. H. Valantine, Wakonda, third vice-president; and G. E. Duncan, Tyndall, was re-elected secretary-treasurer.

The next meeting of the Association will take place in Sioux Falls, September, 1960.

s/G. E. DUNCAN, *Secretary.*

Washington

Washington State College Becomes a University.—Washington State College became Washington State University on Senate Bill No. 1, passed on March 5, 1959. It did not become effective, however, until September 1. Passage of the bill in the Senate was by a 46-2 margin while the House vote read 86-6.

The school was first known as the Washington Agricultural College, School of Science and Agricultural Experiment Station. In 1905, this title was given national standing and changed to Washington State College.

Even prior to this, however, the name Washington State University was aimed at in 1858. The change to W.S.C. was merely a preliminary step to its present university status.

s/E. C. STONE, Dean, *College of Veterinary Medicine, Correspondent.*

STATE BOARD EXAMINATIONS

TEXAS—Jan. 11-13, 1960, Austin. The completed application must be received in the Board office not later than 30 days before the examination date. Requests for information and applications should be sent to: Mr. T. D. Weaver, Executive Secretary, Texas State Board of Veterinary Medical Examiners, 207 Capital National Bank Building, Austin 16, Texas.

DEATHS

Star indicates member of AVMA

Stanley L. Dean (COR '14), 70, Feura Bush, N.Y., died Aug. 3, 1959, after an illness of two months.

He was scheduled to retire from the State Department of Agriculture and Markets at the

time of his death. Dr. Dean had directed the veterinary operations in six New York counties.

He saw service in World War I, then worked for the federal government for 20 years, entering state service in 1942. Dr. Dean had lived in Feura Bush since 1945.

★**George DeFrieze** (OSU '45), 39, McComb, Ohio, died Aug. 28, 1959.

Born in Canton, Ohio, Dr. DeFrieze moved to McComb in 1946, after serving in World War II. Active in numerous civic organizations, he also served a term as McComb's mayor.

William L. Govone, 51, Waltham, Mass., chief of staff at the Animal Rescue League in Boston, died Aug. 6, 1959, from a heart attack. He was on vacation at the time of his death.

Born in Sandwich, Mass., Dr. Govone had been an inspector in scabies control for the state of Illinois, prior to moving to Waltham six years ago.

Dudley Jackson, Sr., (KCV '13), 68, San Antonio, Texas, died July 25, 1959.

After graduation from the Kansas City Veterinary College, Dr. Jackson entered the Medical Branch of the University of Texas in Galveston, graduating in 1917 with an M.D. degree.

He conducted extensive research in the treatment of rattlesnake bites and evolved the suction method of treatment, which was adopted by the armed forces. Dr. Jackson also became interested in the diagnosis and treatment of cancer and allied diseases and was the holder of a Walter Reed Society Award for experiments in cancer wherein he transplanted living cancer cells into his own body and removed them after study.

Several years ago, he helped to organize the Pan American Cancer Foundation for cancer patients in Mexico and the Southwest. In addition, Dr. Jackson assisted in the formation of the National Cancer Institute at Bethesda, Md.

G. G. Lemley (CVC '14), 84, Omaha, Neb., died July 28, 1959, following a year's illness.

Dr. Lemley opened the first animal hospital in Omaha, when he began his practice there in 1914.

Edward J. McLaughlin (GWU '13), 78, Salisbury, Md., died recently (according to an announcement in the August, 1959, issue of *The Maryland Veterinarian*), after a short illness.

Dr. McLaughlin moved to Salisbury in 1918. He had worked for the U.S. Department of Agriculture in animal disease control, until his retirement ten years ago.

★**Carl F. Schlotthauer** (STJ '23), 66, Rochester, Minn., retired member of Mayo Clinic and the Mayo Foundation staffs, former AVMA Executive Board member, and widely-known authority and writer on diseases of animals, died on Oct. 21, 1959, as the result of a hunting accident.

He was killed instantly by an accidental shotgun blast while hunting ducks from a boat near Kellogg, Minn.

Born in Madison, Wis., Dec. 3, 1893, he attended the University of Wisconsin's agricultural college in 1911-1913; served with the U.S. Army Veterinary Corps in 1918-1919; then studied in the University of Wisconsin's Division of Veterinary Science in 1919-1920, before

Dr. Carl F. Schlotthauer

enrolling at St. Joseph Veterinary College. He received his D.V.M. degree in 1923.

For a year thereafter, he was veterinarian at the Pabst dairy farms in Oconomowoc, Wis., before accepting appointment, in 1924, as assistant in veterinary medicine in the Division of Experimental Surgery and Pathology of the Mayo Foundation.

Here, Dr. Schlotthauer carried on much basic and applied research, concentrating on nervous and neoplastic diseases of animals (especially on dogs), with Dr. Frank C. Mann, then director of the Division, and others.

He rose successively from assistant, to instructor, to assistant professor, to associate professor, and to professor in the Foundation (to the latter position in 1945). Over the years, Dr. Schlotthauer was author or co-author of over 175 contributions to veterinary literature and appeared on the programs of many professional and scientific organizations.

Always active in professional and Association affairs, he served on the Minnesota state committee for procurement and assignment of veterinarians during World War II and was elected a vice-president of the AVMA in 1942.

He had previously been chairman of the AVMA's small animal section in 1932-1933 and a member of its committee on public relations from 1935 to 1948 (chairman in 1943-1944). He was also a member of the AVMA's Research Council from 1942 to 1951.

In 1950, Dr. Schlotthauer was elected to a five-year term on the AVMA Executive Board from District V (Iowa and Minnesota). Previously, in 1937-1938, he had been a delegate to the Association's House of Representatives from Minnesota.

He was president of the Minnesota V.M.A. (1945) and an associate member of the AAHA. In 1958, he received the AAHA's Morris Foundation Small Animal Award, and in 1959, he was presented with a certificate of merit by the University of Minnesotá for long and faithful service in its Graduate School.

In addition, he was a member of the Conference of Research Workers in Animal Diseases, of the Animal Care Panel, the honorary society of Sigma Xi, and a fellow of the American Board of Animal Laboratory Medicine.

Dr. Schlotthauer was an active participant in civic affairs. He was especially interested in the Boy Scouts program, the Isaac Walton League, and the Chamber of Commerce Safety Council. He was also a trustee of the Congregational Church.

He is survived by two sons, both veterinarians: Dr. John C. Schlotthauer (MIN '54) who is on the staff of the College of Veterinary Medicine, University of Minnesota; and Dr. Charles G. Schlotthauer (MIN '57) who practices at Pine Island, Minn.

Dr. Schlotthauer had retired from the Mayo Clinic and Mayo Foundation on Dec. 31, 1958.

Charles Schmitt (CVC '92), 90, Dodgeville, Wis., died July 29, 1959, after a short illness. He retired in 1956, having practiced in Iowa County, Wis., for 65 years.

Dr. Schmitt was a pioneer in the fight against tuberculosis and brucellosis in cattle in Wisconsin. Fifty years ago, he advocated compulsory vaccination for cattle.

L. W. Vickory, 91, Ramseur, N. Car., died Aug. 5, 1959. Dr. Vickory had retired from practice five years ago. He had been a life-long resident of Ramseur.

William H. Weathers (CVC '05), Streator, Ill., died Aug. 13,, 1959, after a year's illness. He had retired last June, having completed over 50 years of practice.

After graduation, Dr. Weathers practiced in Magnolia, Ill., for four years whereupon he joined the faculty of the Terre Haute Veterinary College in Indiana, for six years. He then opened a practice in Henry, Ill.; later moving to Streator in 1931.

Ralph E. Wilkinson (CVC '08), 74, Walworth, Wis., died July 13, 1959. Dr. Wilkinson had practiced in Walworth for several years and later was employed as a meat inspector in Lawrence, Wis.

★**Israel Zimmerman** (GR '06), 74, Bronx, N.Y., died Aug. 24, 1959, after a long illness. He had been made a life member of the AVMA in 1955.

Dr. Zimmerman was with the former Bureau of Animal Industry and was last employed as a poultry inspector with the U.S. Department of Agriculture.

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Other Deaths Reported.—The following deaths have been reported. The usual information for an obituary was not supplied.

★John J. Evans, Jr. (KCV '17), 69, Ocala, Fla., May 31, 1959.

S. M. Fields (CVC '10), Claremont, Calif., died July 27, 1959.

★L. A. Huseby (CVC '14), Adams, Minn., sometime in 1959.

Richard Lewis, 80, Erin, Tenn., died Aug. 8, 1959.

Ian S. Morrison (ONT '49), Simcoe, Ont., Can., died June 3, 1959.

Herman D. Nelson (ONT '12), Guelph, Ont., Can., died June 3, 1959.

J. D. Paquette (CVC '14), Cuba City, Wis., died Sept. 3, 1959.

L. Potter (ISC '15), Iowa, April 6, 1959.

John C. Rusk (MCK '04), Vancouver, B.C., Can.

Nelson H. Whitehill, 62, Washington, D.C., area, died June 7, 1959.

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by Irving H. Leopold, Anna C. Nichols and Adolph W. Vogel. *Arch. Ophthalmology*, 44: 22 (July) 1950.

INFECTIOUS KERATOCONJUNCTIVITIS OF CATTLE
by S. Lester Jackson. *Vet. Med.*, 49: 260 (June) 1954.

THE PRACTICAL RESULTS OF SENSITIVITY TESTS IN SMALL ANIMAL PRACTICE
by Margaret Schlichting. *Vet. Med.*, 51: 280 (June) 1956.

TOPICAL USE OF CHLORAMPHENICOL IN EXTERNAL OCULAR INFECTIONS
by Winston Roberts. *Am. J. Ophthalmology*, 34: 1081 (Aug.) 1951.

THE CLINICAL USE OF CHLOROMYCETIN IN CANINE OCULAR INFECTIONS
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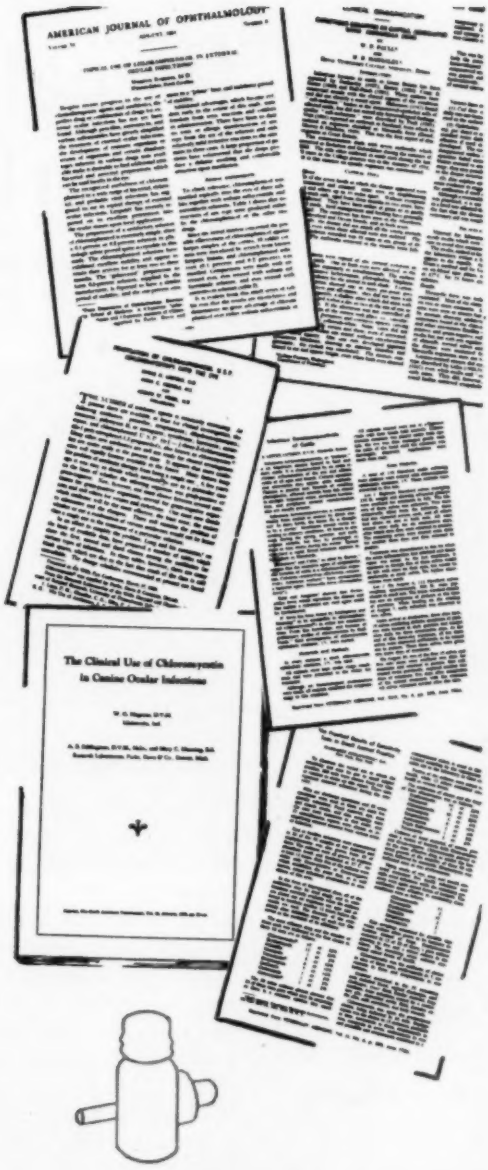
INFECTIOUS KERATITIS IN CATTLE, ASSOCIATED WITH MORAXELLA BOVIS
by W. B. Faull and M. B. Hawksley. *Vet. Rec.*, 66: 311 (May 29) 1954.



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1. Osborne, J. C. *in* New Horizons in Chemotherapy. Proceedings of First Regional Conference on the Nitrofurans in Veterinary Medicine. In press.
2. Bull, W. S.: N. Amer. Vet. 38: 3 (Jan.) 1957.

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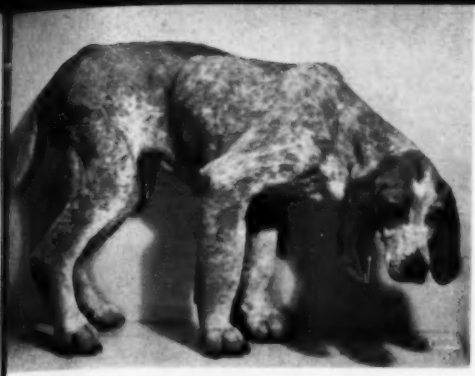
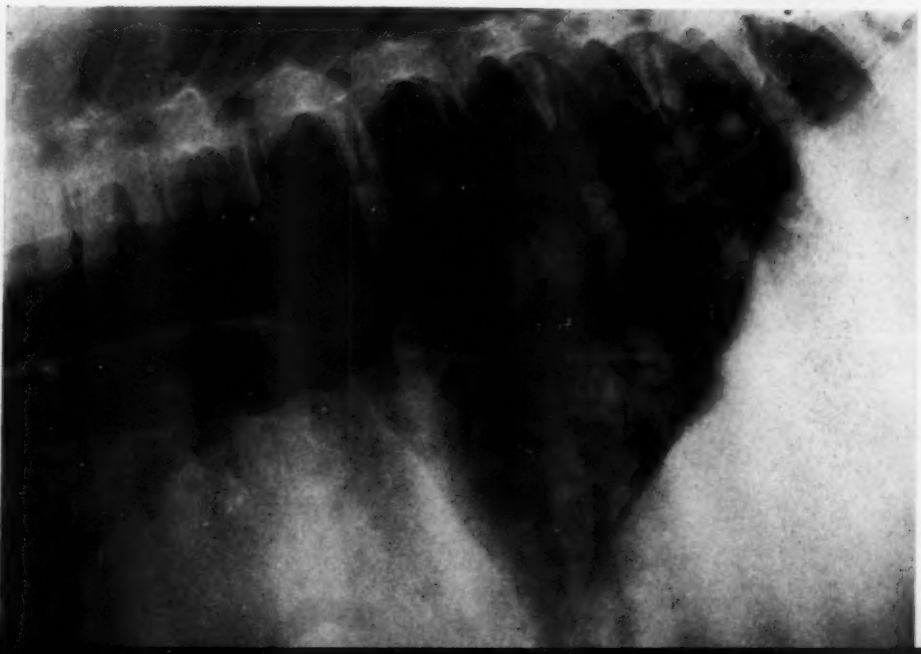


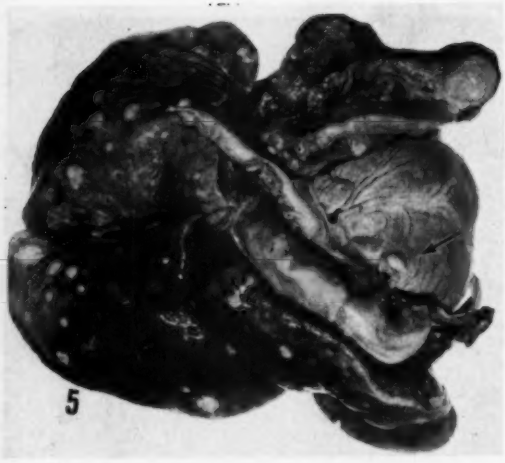
What Is Your Diagnosis?

Because of the interest in veterinary radiology, a case history and radiographs depicting a diagnostic problem are usually published in each issue.

Make your diagnosis from the pictures — then turn the page ▸

History.—A female Foxhound, 6 years old, developed a stiff gait, and all four legs become enlarged to twice their normal size. The legs were hard and did not pit on pressure. The enlargements extended uniformly from the elbows and stifles to the ends of the toes (fig. 1, above). A mass 9 by 9 by 7 cm. attached to the trachea was present in the region of the right thyroid. Radiographs were taken. A lateral view of the thorax (fig. 3, right) and of the foreleg (fig. 2, below) are shown.





Here Is the Diagnosis

(Continued from preceding page)

Diagnosis.—Undifferentiated carcinoma in the region of the thyroid and parathyroid glands with metastases and secondary pulmonary osteoarthropathy.

Comment.—In the primary mass, neither the thyroid nor parathyroid glands could be identified and metastases were widespread to the viscera. The accompanying photographs are of the primary tumor (arrow, fig. 4), metastases of the heart (arrow) and lungs (fig. 5), and exostoses of the bones of a foreleg after the flesh had been removed by boiling (fig. 6).

The exact cause of pulmonary osteoarthropathy is unknown. It is presumed that absorption of some unidentified toxic material, common to the several types of pulmonary infection, causes the bone changes which characterize the condition. The most common precursors of pulmonary osteoarthropathy include longstanding empyema, purulent bronchiectasis, chronic lung abscesses, and primary or metastatic pulmonary neoplasms.[1]

The disease is characterized by thick layers of subperiosteal bone which extend along the shafts of long bones. These layers of osseous tissue are normal except that they are laid down more loosely than ordinary cortical bone. If the patient lives for a long time, the new bone gradually becomes as dense as the neighboring cortex and the two can then no longer be differentiated. In the few cases that have been arrested by removal of the pulmonary lesions, the abnormal subperiosteal bone may be completely absorbed so that the affected parts of the skeleton regain normal appearance.[1]

[1]Phillmore, G. U.: Clinical Radiology. Vol. II. F. A. Davis Co., Philadelphia, Pa. (1946): 560-562.

This report was submitted by Wayne H. Riser, D.V.M., Ph.D., Skokie, Ill., and I. S. Rossoff, D.V.M., Taylorville, Ill.

Our readers are invited to submit histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

Fig. 4—Photograph of the tongue, larynx, and trachea of the dog showing the primary tumor in the region of the right thyroid (arrow).

Fig. 5—Photograph showing metastases to the heart (arrow) and lungs.

Fig. 6—Photograph showing exostoses of the bones of a foreleg after the flesh had been removed by boiling.

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FUREA® *bolus veterinary*

FUREA effectively combats the dangers that arise in bovine retained placenta by a 2-way action:
1) *bactericidal*, even in the presence of pus, blood and serum, and 2) *proteolytic* for resolving necrotic tissue.
Clinical usage produced a rapid decrease in signs of infection, reduction or elimination of malodor, and unimpaired fertility in over 90% of treated cows.
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Supplied: Bottle of 25 boluses.

1. Jones, S. V.; Belloff, G. B., and Roberts, H. D. B.: Vet. Med. 51:413 (Sept.) 1956.

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prevention of uterine infection—early restoration of fertility in over 90% of treated cows[1]

Behind the Scenes in Television at Kansas City

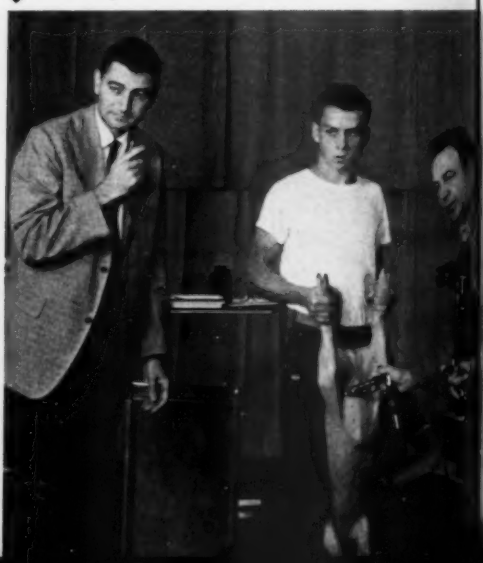
■ The illustrations on these pages show some of the complicated equipment needed to produce the closed-circuit television programs seen during the section meetings at Kansas City.

Much of the success of these programs is due to the careful planning by the section officers, members of the local committee, and to Dr. Les Fisher of Berwyn, Ill., who coordinates the activities and keeps them running smoothly.

These programs are made possible each year by Allied Laboratories, Inc., in cooperation with Radio Corporation of America.

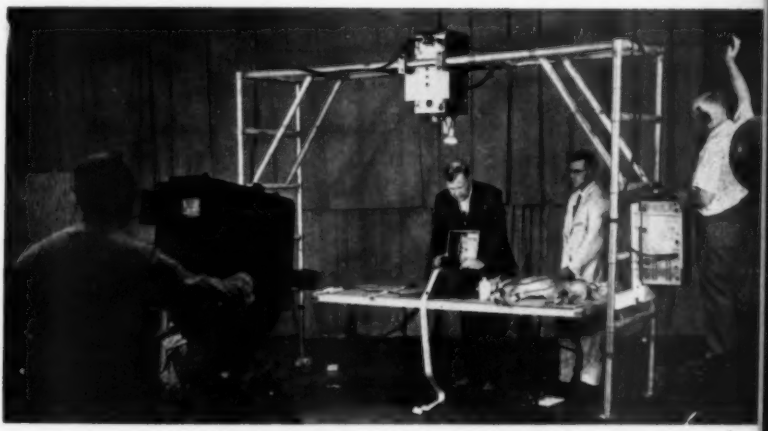
◀ Demonstration of repair of lacerations of the bovine teat.

Dr. Fisher (left) narrates as Dr. H. P. Callaway, Waverly, Mo. (right), demonstrates rapid method of pig castration. ▼



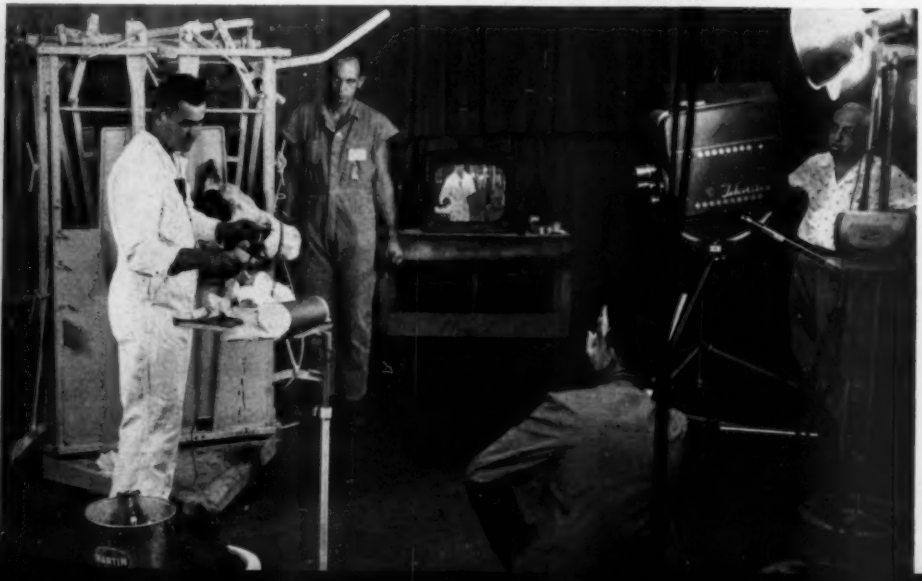
◀ The television control panel is shown at the top of the opposite page.

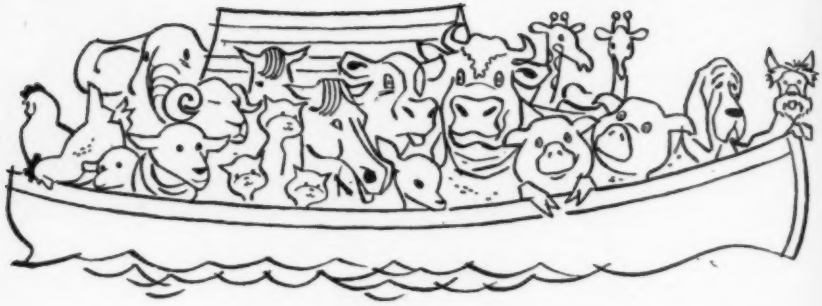
Dr. Lennart P. Krook, Manhattan, Kan. (right), demonstrates necropsy technique for the dog as Dr. Marvin J. Twiehaus (second from right) narrates.



Dr. Carl H. Clark, Auburn, Ala., demonstrates electrocardiographic techniques in the dog.

Dr. Paul Christian (left) of Waco, Texas, demonstrates ablation of the bovine eye with the help of Dr. James McCrea, Platte City, Mo. Dr. Fisher (foreground) and Mr. Schneider at the camera, take care of the television technicalities.





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Because Daribiotic is bacteri*cidal*, resistant organisms have little opportunity to develop. Convenient dosage forms for the treatment of small and large animals broaden the usefulness of Daribiotic.

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DARIBIOTIC Mastitis Infusion—in 7.5-cc. tubes and 100-cc. vials.
DARIBIOTIC-AH —12-cc.disposable syringe for mastitis infusion.
DARIBIOTIC Tablets—for control of intestinal infections.
DARIBIOTIC Soluble—convenient oral administration in liquids for intestinal infections.

*U.S. Patent No. 2,565,057

1. Barr, F.S., Carman, P.E. and Harris, J.R.: Synergism and Antagonism in Antibiotic Combinations; Antibiotics and Chemotherapy; 4:818 (1954).
2. Baker, W.L.: Clinical Use of Injectable Neomycin and Polymyxin B; Veterinary Medicine, 53 (1958):275.
3. Barr, F.S., Harris, J.R. and Carman, P.E.: Intramuscular Treatment of Staphylococcic Mastitis with Neomycin Sulfate and Polymyxin B Sulfate; J.A.V.M.A., 132 (1958): 110.

Write for literature and reprints

THE S. E. MASSENGILL COMPANY
VETERINARY DIVISION
Bristol, Tennessee

Women's Auxiliary

Public Relations Media Committee Plans

You just can't sit on the lid of progress! If you do, you will be blown to pieces. Progress is an inevitable force in any profession—and a key factor of progress is good public relations.

Each veterinarian and each veterinarian's wife is an influential part of our public relations team. Lasting impressions are made through personal contacts with the public in our everyday living.

Together, yet working as individuals, we should constantly attempt to present our profession to the public as a highly trained, highly specialized, and dedicated service to mankind. Through this effort, each doctor of veterinary medicine should receive the respect, the confidence, and the admiration from the public which he so rightly deserves.

The AVMA Auxiliary public relations media committee, under the direct supervision of the AVMA public relations director, Brian Forster, is planning the following program for 1959-60:

Our committee plans to contact each and every auxiliary in the fifty states. This contact will be through each state's public relations committee chairman, or where the auxiliary doesn't have a public relations chairman, the auxiliary president.

We plan to stress many of the public relations ideas started during the past few years. Each auxiliary will receive a copy of the "Open House Project," a copy of "PR Director Suggests," and also the monthly publication, *PR Roundup*. These aids will help strengthen the PR program of each auxiliary. Brian Forster has requested that all auxiliaries continue to send local newspaper clippings concerning veterinary medicine to him.

Another project this year is Mr. Forster's request for the addition of one or two women to each V.M.A. public relations committee (both local and state). To quote Mr. Forster, "Working as separate committees, the men are too busy to work out their ideas, and the women don't know what needs to be done because they have no contact with the men." With our new plan, we believe that veterinarians and their wives working together in public relations will bring further honor and dignity to our profession, and we will gain the confidence and admiration of those with whom we come in contact.

s/Mrs. Don W. Clarke,
Vice-President for Public Relations.

Projects and Personalities

Listing the flying of her Navion plane as one of her hobbies, blonde Mrs. Don (Jinx) Clarke, the new vice-president for public relations media

(Continued on adv. page 42)

Women's Auxiliary officers meet with Washington V.M.A. representatives to discuss plans for a joint PR committee.

Back row (l. to r.)—Dr. Robert Burch, Seattle V.M.A.; Dr. Robert Ford, Yakima V.M.A.; Dr. Max Nicholls, Tri-County V.M.A.; Dr. Frank Herr, North Central V.M.A.; Dr. Henry Burke, South Puget Sound V.M.A.; and Dr. Charles Hayward, Inland Empire V.M.A.

Front row (l. to r.)—Mrs. Don Clarke, AVMA Auxiliary vice-president for public relations; and Mrs. Chet Griffith, president of the Washington State Auxiliary.

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PFIZER LABORATORIES, Div., Chas. Pfizer & Co., Inc.,
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(Continued from page 37)

and one of the most attractive members of the Auxiliary Executive Board, exemplifies the versatile lives of many of the Board members.

Mrs. Clarke met her husband while both were in military service. She progressed from a buck private in the WAC (Air Corps) to second lieutenant in three years.

Assisting her husband in the operation of their veterinary hospital in Seattle, Wash., for eleven years, she took time out to have her children, Randall, now 13, and Michelle Sue, 10.

The Clarkes now live on a ranch on San Juan Island, Wash., and raise registered Polled Herefords.

Besides flying, Mrs. Clarke names veterinary public relations, dancing, golf, and the ranch as other interests. In 1954, she served as general chairman for the annual AVMA convention in Seattle. She is also a past-president of the Washington Auxiliary.

S/MRS. A. M. SIMPSON,
Vice-President for Publications.

✦ ✦ ✦

Auxiliary Dues

Mrs. Frank R. Booth, president of the Women's Auxiliary to the AVMA, has announced that all Auxiliary records have been transferred to the AVMA headquarters office. Dues should be sent to the Women's Auxiliary Clerk, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago, Ill.

APPLICATIONS

Applicants Not Members of Constituent Associations

In accordance with paragraph (c) of Section 1, Article I, of the Bylaws, the names of applicants who are not members of constituent associations shall be published in the JOURNAL. Written comments received by the Executive Secretary from any active member regarding the application as published, will be furnished to the Judicial Council for its consideration prior to acceptance of the application.

FOWLER, JAMES L.
Office of the Veterinarian, APO 851, N.Y.
D.V.M., University of Georgia, 1952.
Vouchers: W. E. Jennings and G. H. Zacherle.

SEYMOUR, MILFORD R.
104 Nelson Dr., Williamsburg, Va.
D.V.M., Iowa State University, 1944.
Vouchers: W. E. Jennings and G. H. Zacherle.

HAMMER, WALTER D.
4193 Wright Ave., Columbus 13, Ohio.
D.V.M., Alabama Polytechnic Institute, 1945.
Vouchers: W. E. Jennings and G. H. Zacherle

HALLETT, CHARLES S.
321 Riverside Dr., Riverhead, N.Y.
D.V.M., New York State Veterinary College, 1934.
Vouchers: W. E. Jennings and G. H. Zacherle.

CHAPMAN, CECIL T.
U. S. Army Veterinary Det., Europe, American Consulate General Building (Hamburg), APO 69, N.Y.
D.V.M., Alabama Polytechnic Institute, 1945.
Vouchers: C. W. Betzold and H. Sibert.

PEACOCK, WALTER H.
Charlotehoj 82, Aalborg, Denmark.
D.V.M., Alabama Polytechnic Institute, 1949.
Vouchers: C. W. Betzold and W. S. Gaston.

THOMAS, FRANCIS LOVELL
U. S. Army Veterinary Food Inspection Det., Hg. Fort MacArthur, Fort MacArthur, Calif.
D.V.M., Alabama Polytechnic Institute, 1944.
Vouchers: C. L. Taylor and R. R. Smith.

LAMPRU, PAUL D.
Quarters 703, APO 957
San Francisco, California
D.V.M., Alabama Polytechnic Institute, 1949
Vouchers: H. R. Faust and L. E. Meckstroth

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Young turtles need an especially abundant supply of minerals because of the excessive demands imposed by the shell. Shell softness and deformity result from insufficient minerals. A ball of hard plaster of Paris, kept in the aquaria of water turtles, helps combat mineral deficiencies.

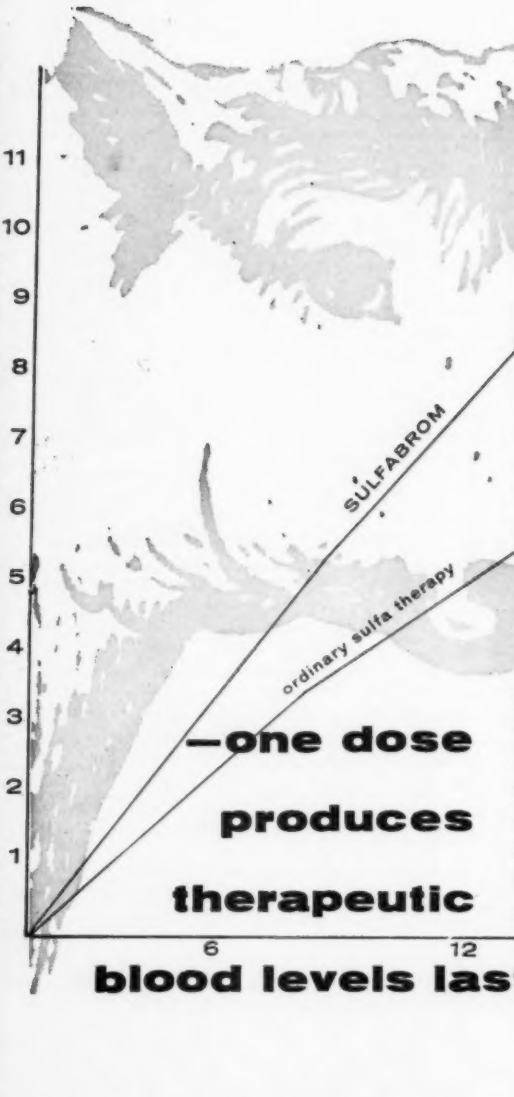
Eye infections are common in turtles and may be reduced by maintaining a high concentration of copper ions in the water. Small square pieces of copper screen will supply needed copper.—*H. M. Smith at the Symposium on Health of Small Animals, Chicago, July, 1959.*

Skunk Prolapse Problem

One amazing and peculiar physical phenomenon of the skunk is its uncanny ability to extend its rectum 2 to 4 inches out of the body through the anus. It is theorized that this condition might be caused by worm infestations and consequent irritation. It is not serious, however, if replaced before irritation and infection become severe. After cleansing with a mild soap solution, it can be gently massaged back by firm, steady pressure at the base of the protrusion. It may never come out again, or it may be necessary to replace it several more times.—*C. Hume at the Symposium on Health of Small Animals, Chicago, July, 1959.*

SULFA

...for a new



—one dose produces therapeutic blood levels lasting up to 48 hours in cattle

More than any other professional man, the practicing veterinarian knows that his most valuable asset is time. In any area of his practice, the success of his therapy cannot be measured by results alone; he is a busy man whose time must be used judiciously.

Well aware of this problem, Merck research workers have designed an antibacterial agent which, from its conception, was meant to satisfy the particular needs of the veterinarian. In cattle, this new drug produces effective therapeutic blood levels for at least two days, freeing the veterinarian from time-consuming return calls and minimizing stress-producing handling.

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ABROM*

ew concept in sulfonamide therapy

SULFABROM is a bromine-substituted sulfamethazine developed by Merck research workers. This new antibacterial agent is the only sulfa product available *exclusively* to veterinarians.

intraperitoneally to cattle, produces effective blood levels lasting up to 48 hours—frequently long enough to eliminate *any* repetition of dosage.

SULFABROM—quickly absorbed, slowly excreted

Although SULFABROM is notable for producing effective levels in rapid time, once it has entered the blood stream its speed of action slows down considerably. SULFABROM is excreted very slowly; this accounts for its long-lasting effect. In cattle, detectable amounts may be present in the urine for as long as six days. Blood levels remain high, sometimes for as long as 53 to 60 hours. And, because it is excreted so slowly, seldom is the amount of SULFABROM passing through the urinary tract ever large enough to cause crystalluria.

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By maintaining a high sulfonamide level in the tissues, SULFABROM minimizes the emergence of resistant strains of most pathogens. SULFABROM exerts its antibacterial effect at the cellular level long enough to combat effectively both gram-negative and gram-positive organisms including those responsible for:

calf diphtheria "recovery in 48 hours";
acute septic mastitis "uneventful recovery";
metritis "back on feed and eating normally" in two days;
foot rot "in 48 hours the cow was able to stand and started to eat";
pneumonia "in five days' time this calf was back to normal";[1]
as well as *scours*, winter dysentery, coccidiosis, shipping fever, listerellosis and miscellaneous infectious conditions, such as peritonitis and infected wounds.

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In sum, SULFABROM represents the very latest advance in sulfa therapy. Effective against a full range of infectious diseases, economical to use by any standards, SULFABROM is your answer to the pressing problem of repeat calls and handling time in the treatment of almost any infection.

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DOSAGE *(in cattle)*

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SULFABROM Buffered Powder
15-30 mg. (0.25-0.5 grains)/lb., intravenously—for *immediate* levels
30-60 mg. (0.5-1.0 grains)/lb., intraperitoneally—for *rapid*, sustained levels
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SULFABROM Buffered Powder—1-lb. bottles
SULFABROM 15 Gm. Boluses—packages of 5 and 50
SULFABROM 4 Gm. Boluses—packages of 5 and 50

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History of the AVMA

1872-1874

The meetings for 1872-1874 were held in Boston and New York as customary, but little of what transpired seems to be recorded. The Committee on Charter reported that incorporation of the Association seemed "impracticable." Dr. Thayer presented a case of parotid duct fistula, and cerebrospinal meningitis was again discussed, but strangely enough, the prevailing epizootic of horse influenza, which undoubtedly caused many of those present to walk to the meeting in New York (1872), wasn't mentioned.

New members elected were: Theo. K. Very, Robert J. Saunders, J. D. Hopkins, R. W. Finley, and Peter Peters. The death of "Dr. Watson" (Walton ?) was announced. In 1874 it was proposed to donate $50 to aid in the erection of a monument to the memory of Claude Bourgelat at Alfort, France, commemorating his founding of the school in 1765. This would appear to have been the first action of an international character by the Association, and as such is of some significance. The incumbent officers were re-elected in 1872 and 1873. The annual meeting for 1874 was not held owing to an error in the date of the notices sent out, and the semiannual meeting in 1875 attracted only the *Comitia Minora*. The period from 1870 to 1875 was a low point in the fortunes of the U.S.V.M.A. Following this period, however, the fortunes of the Association took an upward turn and, with the publication of the *American Veterinary Review* in 1877, its continued growth seemed assured.

✦ ✦ ✦

WILLIAM SAUNDERS, V.S., was born in England in 1827, and became a practitioner under the tutelage of his father. A charter member of the U.S.V.M.A., he was a perennial vice-president during the early years, and served several terms as censor. His Association activities, however, appear to have been limited to little more than attending the meetings, and with the influx of new members about 1875, he dropped from notice.

He was characterized as "nothing of a student," but exuded self-confidence, and had powers of observation which led to generally good judgment, depending largely upon experience to carry him through. He took students, to whom he imparted these same characteristics—at least to the extent which the raw material permitted. One of his so-called students, raised to the dignity of a practitioner, was described as "a small, insignificant, and, of course, conceited fellow, more fond of smoking either good or bad cigars than of reading a book."

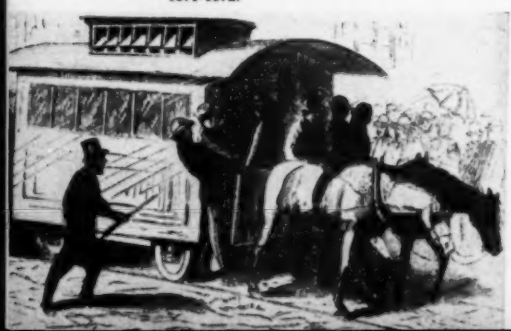
A colleague states of Saunders: "He was a great favorite with almost everyone he met, and was generous and genial, every day. People employed him who recognized him as a man of no great education, and they made no mistake in doing so, for their interests were safe in his hands and his judgment in general practice was good . . . He was of that class, the unlimited majority who choose the easy roadway . . . his dignified manners and appearance carried him along . . . He had commercial faculties largely developed, and always had a large business." He died in 1884. If he had contributed little to the advancement of veterinary knowledge, he at least brought to the practice of veterinary medicine a certain dignity.

✦ ✦ ✦

THOMAS B. RHODES is hardly deserving of mention except as an example of the disreputable, yet successful, element that impeded the progress of veterinary medicine both professionally and socially for many years. Born in England, his only qualifications appear to have been his tenure as a stable boy for a prominent practitioner. By 1860, however, he enjoyed one of the largest practices in New York City, and was termed "the lion of veterinary medicine." Unable to read or write, he was a man of the utmost ignorance: "In appearance he was small and of rather repulsive manners; he was always dirty, with his clothes full of blood or of stable marks, which seemed to be for him a means of advertising." His infirmary, however, was said to be as clean as he was dirty.

His biographer continues: "It is useless to say that Rhodes was not a member of the U.S.V.M.A. It was good fortune for the association, as he might have called at the first meeting, and it would have been difficult to refuse him membership." By degrees, his bad habits got the best of him, and he died in poverty.

Street scene in New York during the epizootic of horse influenza. 1871-1872.



COMING MEETINGS

Notices of coming meetings must be received 30 days before date of publication.

Midwest Feed Manufacturers' Association. Second conference. Kansas City, Mo., Nov. 30-Dec. 1, 1959.

Veterinary-Nutrition Conference. Second annual meeting. President Hotel, Kansas City, Mo., Nov. 30–Dec. 1, 1959. This conference is sponsored jointly by the Iowa, Kansas, Missouri, and Nebraska Veterinary Medical Associations and the Midwest Feed Manufacturers' Association.

Nebraska Veterinary Medical Association. Winter meeting. Cornhusker Hotel, Lincoln, Neb., Dec. 1-3, 1959. Dr. H. E. Hedlund, 403 N. Broadway, Wahoo, program chairman.

Eastern Illinois Veterinary Medical Association. Winter dinner meeting. Hotel Tilden Hall, Champaign, Dec. 3, 1959, at 6:30 p.m. Edwin I. Pilchard, Jr., secretary-treasurer.

Arizona State Veterinary Medical Association. Annual meeting Rancho Grande Hotel, Nogales, Ariz., Dec. 6-8, 1959. J. D. McCullough, 702 Yale Dr., Tucson, correspondent.

National Association of Federal Veterinarians. Forty-second annual meeting. Sheraton-Palace Hotel, San Francisco, Calif., Dec. 14, 1959, at 7:30 p.m. L. T. Hopkins, 5837 Highland Ave., Kansas City 4, Mo., secretary-treasurer.

American Association of Equine Practitioners. Fifth annual meeting. LaSalle Hotel, Chicago, Ill., Dec. 14-16, 1959. Dr. M. B. Teigland, 2560 State Service Rd., Opa Locka, Fla., secretary-treasurer.

United States Livestock Sanitary Association. Sixty-third annual meeting. Sheraton-Palace Hotel, San Francisco, Calif., Dec. 15-18, 1959. R. A. Hendershott, 33 Oak Lane, Trenton, N.J., secretary.

New York State Veterinary College. Fifty-second annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, Jan. 6-8, 1960. George C. Poppensiek, dean.

Kansas Veterinary Medical Association. Fifty-sixth annual convention. Hotel Broadview, Wichita, Jan. 10-12, 1960. Melvin W. Osburn, 1525 Humboldt, Manhattan, Kan., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Noel Hotel, Nashville, Tenn., Jan. 10-12, 1960. H. W. Hayes, 5009 Clinton Pike, Knoxville, secretary.

Wisconsin Veterinary Medical Association. Annual meeting. Milwaukee, Wis., Jan. 10-12, 1960. W. J. O'Rourke, 540 W. Washington Ave., Madison, secretary.

Indiana Veterinary Medical Association. Seventy-sixth annual convention. Hotel Severin, Indianapolis, Ind., Jan. 13-15, 1960. L. M. Borst, 3315 Shelby, Indianapolis, secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Jan. 19-21, 1960. F. B. Young, Waukee, Iowa, secretary.

Intermountain Veterinary Medical Association. Annual meeting. Hotel Utah, Salt Lake City, Jan. 21-23, 1960. For information contact: Dr. Douglas H. McKelvie, 1220 South State St., Salt Lake City, Utah, or Dr. R. A. Bagley, 4600 Creek View Dr., Murray, Utah.

Minnesota State Veterinary Medical Society. Annual meeting. Hotel St. Paul, St. Paul, Minn., Jan. 25-27, 1960. B. S. Pomeroy, University of Minnesota, College of Veterinary Medicine, St. Paul 1, Minn., secretary.

Louisiana State University. Twenty-ninth annual short course for veterinarians. Pleasant Hall, Louisiana State University campus, Baton Rouge, Jan. 26-27, 1960. R. B. Lank, Department of Veterinary Science, Louisiana State University, chairman.

Ontario Veterinary Association. Annual convention and trade exhibit. Royal York Hotel, Toronto, Jan. 28-30, 1960. W. E. Jolliffe, Suite 102, 97 Eglinton Ave., East, Toronto 12, Ont., registrar.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Hilton Hotel, Columbus, Jan. 31-Feb. 3, 1960. R. E. Rebrassier, 1411 West Third Ave., Columbus 12, Ohio, executive secretary.

Oklahoma Veterinary Medical Association. Forty-fifth annual meeting. Biltmore Hotel, Oklahoma City, Feb. 1-2, 1960. J. B. Corcoran, P.O. Box 652, Stillwater, Okla., president.

California Veterinary Medical Association. Midwinter conference. University of California, Davis, Feb. 1-3, 1960. Mr. Kenneth Humphreys, 3004 16th St., San Francisco 3, Calif., executive secretary.

Nebraska, University of. Conference on Swine Repopulation. University of Nebraska, College of Agriculture, Agricultural Experiment Station, Lincoln 3, Feb. 3-5, 1960. Inquiries should be directed to: Dr. E. Crosby Howe, Dept. of Animal Pathology and Hygiene, University of Nebraska, Lincoln 3.

American Animal Hospital Association, Region 2. Annual meeting. Robert Meyer Hotel, Jacksonville, Fla., Feb. 4-6, 1960. R. P. Knowles, 2101 N.W. 25th Ave., Miami 42, Fla., chairman.

Colorado State University. Twenty-first annual conference for veterinarians. Glover Veterinary Hospital, College of Veterinary Medicine, Colorado State University, Fort Collins, Feb. 15-17, 1960. O. R. Adams, program chairman.

Missouri Veterinary Medical Association. Sixty-eighth annual meeting. Hotel President, Kansas City, Mo., Feb. 21-23, 1960. Paul L. Spencer, P.O. Box 283, Jefferson City, Mo., secretary-treasurer.

Foreign Meetings

International Association of Veterinary Food Hygenists. Second Symposium. Basel, Switzerland, May 15-21, 1960. Dr. A. Clarenburg, 1, Sterrenbos, Utrecht, The Netherlands, president.

Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Medical Association, the first Thursday of each month. James L. Chambers, 4307 Normanbridge Rd., Montgomery, Ala., secretary-treasurer.

Jefferson County Veterinary Medical Association, the second Thursday of each month. Dan P. Griswold, Jr., 714 S. 39th St., Birmingham, secretary.

Mobile-Baldwin Veterinary Medical Association, the third Tuesday of each month. Cecil S. Yarbrough, 4121 U.S. 90 West, Mobile, Ala., secretary.

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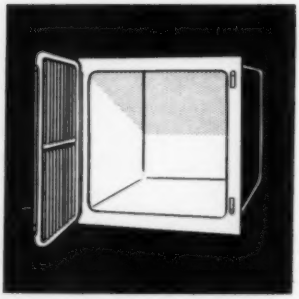

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Northeast Alabama Veterinary Medical Association, the second Tuesday of every other month. Leonard J. Hill, P.O. Box 761, Gadsden, Ala., secretary-treasurer.

ALASKA—Anchorage Group of the Alaska V. M. A., the last Wednesday of each month at Fort Richardson Officers' Club or Thompson's Restaurant, 6th and I Streets, Anchorage, Alaska. Lt. Colonel E. H. Akins, Surgeon's Office, USARAL, Fort Richardson, Alaska, secretary to the Alaska V. M. A.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. John D. Clark, 518 West Oak St., Scottsdale, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. Gwyn Chapin, 2215 E. Calle Vista, Tuscon, Ariz., secretary.

ARKANSAS—Pulaski County Veterinary Medical Society, the second Tuesday of each month. Harvie R. Ellis, 54 Belmont Drive, Little Rock, Ark., secretary-treasurer.

CALIFORNIA—Alameda-Contra Costa Veterinary Medical Association, the fourth Wednesday of Jan., March, May, June, Aug., Oct., and Nov. John S. Blackard, 420 Appian Way, Richmond, Calif., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of February, April, July, September, and December. Herb Warren, 3004 16th St., San Francisco, Calif., executive secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Paul S. Chaffee, 2333 McKinley Ave., Fresno, Calif., secretary.

Humboldt-Del Norte Counties Veterinary Medical Association, the second Tuesday of January, May, September, and November. Dr. M. Lunstra, P. O. Box 734, Eureka, Calif., secretary-treasurer.

Kern County Veterinary Medical Association, the first Thursday evening of the month. Francis Dawson, 2007 Nile St., Bakersfield, Calif., secretary-treasurer.

Mid-Coast Veterinary Medical Association, the first Thursday of each month. William P. Matulich, P. O. Box 121, San Luis Obispo, Calif., secretary-treasurer.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. V. Todorovic, 47 Mann Ave., Watsonville, Calif., secretary.

Northern California Association of Veterinarians, the second Tuesday of the month. George Crenshaw, 1137 8th St., Orland, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell in Modesto, Calif. Kenneth E. Erwin, Box 841, Manteca, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. M. C. McSpadden, 2372 West Ramsey, Banning, Calif., secretary.

Orange County Veterinary Medical Association, the third Thursday of each month. H. M. Stanton, 1122 S.E. U.S. Highway 101, Tustin, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of the month. R. M. Grandfield, 416 Stephens Rd., San Mateo, Calif., secretary-treasurer.

Redwood Empire Veterinary Medical Association, the third Thursday of the month. R. R. Rediske, 833 Vallejo Ave., Novato, Calif., secretary-treasurer.

Sacramento Valley Veterinary Medical Association, the second Thursday of each month with the location specified monthly. Eugene C. Story, 4819 "V" St., Sacramento 17, Calif., secretary.

(Continued on page 46)

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REFERENCES: 1. Cross-over studies by Dr. B. A. Sobin, Pfizer Laboratories. 2. Snell, J. F. and Garkuscha, R., Proc. Soc. Exper. Biol. & Med. *98*:148-150, 1958.

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San Diego County Veterinary Medical Association, the fourth Tuesday of the month. Robert F. Burns, 7572 North Ave., Lemon Grove, Calif., secretary-treasurer.

San Fernando Valley Chapter SCVMA, the second Tuesday of each month at 7:30 p.m., Hody's Restaurant, North Hollywood, Calif. Barbara G. Shirley, Canoga Park, Calif., secretary-treasurer.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at the Casa Escobar Restaurant in Studio City. John Chudacoff, 7912 Sepulveda Blvd., Van Nuys, Calif., secretary.

San Francisco Veterinarians, every other month—meetings decided at previous sessions. J. Wachs, 317D Sacramento St., San Francisco, Calif., secretary-treasurer.

Santa Barbara-Ventura Counties Veterinary Medical Association, every three months, no set date. Gerald M. Clark, 5415 8th St., Carpinteria, Calif., secretary-treasurer.

Santa Clara Valley Veterinary Medical Association, the last Tuesday of the month. Robert L. King, 1269 Grant St., Santa Clara, Calif., secretary-treasurer.

Southern California Veterinary Medical Association, the third Wednesday of the month. Mr. Don Mahan, 1919 Wilshire Blvd., Los Angeles 57, Calif., executive secretary.

Tulare County Veterinary Medical Association, the second Thursday of each month. F. A. Elliott, 2773 Roby St., Porterville, Calif., acting secretary.

COLORADO—Denver Area Veterinary Medical Society, the fourth Tuesday of every month. Gene M. Bierhaus, 2896 S. Federal Blvd., Englewood, Colo., secretary-treasurer.

Northern Colorado Veterinary Medical Society, the first Wednesday of each month, in Fort Collins. E. J. Carroll, Dept. of Clinics and Surgery, Colorado State University, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Medical Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. A. P. Mayer, Jr., R.F.D. 2, Newark, Del., secretary-treasurer.

DISTRICT OF COLUMBIA—District of Columbia Veterinary Medical Association, the second Tuesday evenings of January, March, May, and October. R. B. Gochenour, 10109 Ashwood Dr., Kensington, Md., secretary-treasurer.

FLORIDA—Big Bend Veterinary Medical Association, meets the first Sunday of each month at 5:00 p.m. at the Tallahassee Dining Room, Tallahassee. C. Paul Vickers, P.O. Box 309, Talahassee, secretary.

Central Florida Veterinary Medical Association, the first Friday of each month at 8:00 p.m., place specified monthly. L. R. Poe, 753 W. Fairbanks Ave., Winter Park, Fla., secretary-treasurer.

Florida West Coast Veterinary Medical Association, the second Wednesday of each month at the Lighthouse Inn, St. Petersburg. Fred Jones, 3606 S. Dale Mabry, Tampa, Fla., secretary.

Hillsborough County Veterinary Medical Society, the second Monday evening of each month. For additional information as to the location of each meeting, contact: J. J. Metz, Jr., 5207 Nebraska Ave., Tampa 3, Fla., secretary.

Jacksonville Veterinary Medical Association, the first Thursday of every month. Dodson's Restaurant, Stephen C. Hite, 5807 105th St., Jacksonville 10, Fla., secretary.

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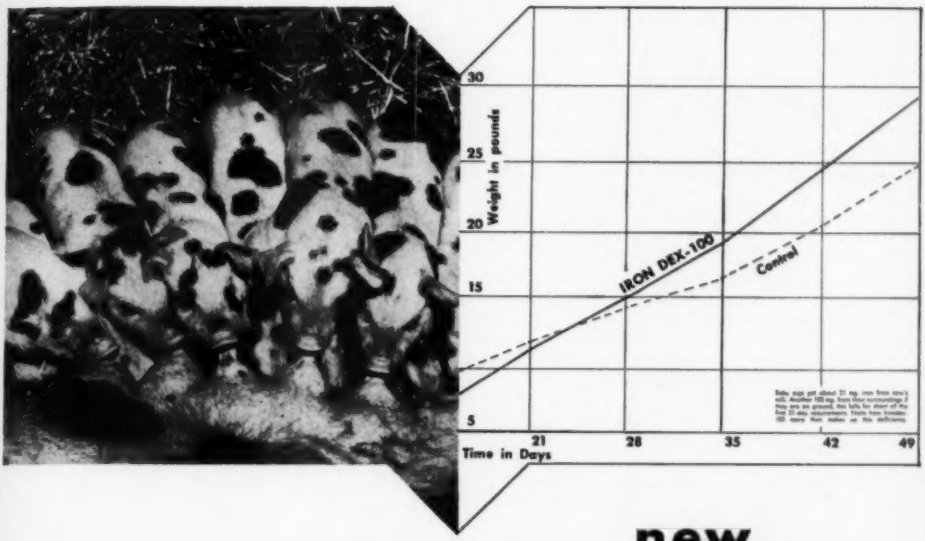

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Northwest Florida Veterinary Medical Society, third Wednesday of each month, time and place specified monthly. John Webb, P.O. Box 183, Cantonment, Fla., secretary-treasurer.

Palm Beach Veterinary Society, the last Thursday evening of each month. McArthur Dairy Building, Four Points, W. Palm Beach. B. W. Bigger, 2833 S. 4th St., Fort Pierce, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. John S. Haromy, Route #1, Box 107-A, Lake Wales, Fla., secretary.

South Florida Veterinary Society, the third Wednesday of each month. Time and place specified monthly. Joe B. O'Quinn, 1690 E. 4th, Hialeah, Fla., secretary.

Suwanee Valley Veterinary Association, the fourth Tuesday of each month, Hotel Thomas, Gainesville. G. L. Burch, P.O. Box 405, Ocala, Fla., secretary-treasurer.

Volusia County Veterinary Medical Association, the fourth Thursday of each month. Robert E. Cope, 127 E. Mason, Daytona Beach, Fla., secretary.

GEORGIA—Atlanta Veterinary Medical Society, the third Thursday of each month at the Elk's Home, 726 Peachtree St., Atlanta. Clare L. Bromley, 634 Northside Dr., N.W., Atlanta, Ga., secretary.

Georgia-Carolina Veterinary Medical Association, the second Monday of each month at 8:00 p.m., at the Town Tavern, Augusta, Ga. J. A. Schmitz, 1711 Gwinnett St., Augusta, Ga., secretary.

North Georgia Veterinary Medical Association, quarterly, no set date, the spring meeting at the Veterinary School, Athens, Ga. S. J. Shirley, Commerce, Ga., secretary.

Southeast Georgia Veterinary Medical Association, quarterly, date and meeting place varies. Hugh F. Arundel, P.O. Box 153, Statesboro, Ga., secretary.

South Georgia Veterinary Medical Association, the second Sunday of each quarter at 3:30 p.m., at the Radium Springs Hotel, Albany, Ga. M. W. Hale, Route 2, Tifton, Ga., secretary.

ILLINOIS—Central Illinois Veterinary Medical Association, June 9, Sept. 9, and Dec. 10, 1959. Paul B. Doby, 4 Owens Lane, Springfield, secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month, Charles H. Armstrong, 1021 Davis St., Evanston, secretary.

INDIANA—Calumet Area Veterinary Medical Association, the first Thursday of each month. Bruce Sharp, Box 166, Hobart, Ind., secretary-treasurer.

Central Indiana Veterinary Medical Association, the second Wednesday of each month. P. T. Parker, 224 N. Mill St., Plainfield, Ind., secretary-treasurer.

Michiana Veterinary Medical Association, the second Thursday of every month except July and December, at the Hotel LaSalle, South Bend, Ind. Stanton Williamson, 217 W. Chippewa St., South Bend, Ind., secretary.

Northwestern Indiana Veterinary Medical Association, the fourth Thursday of each month, except August, January, and February. Harvey R. Smith, R.R. 2, Box 30, Lowell, Ind., secretary-treasurer.

Tenth District Veterinary Medical Association, the third Thursday of each month. J. S. Baker, P.O. Box 52, Pendleton, Ind., secretary.

IOWA—Cedar Valley Veterinary Medical Association, the second Monday of each month, except January, July, August, and October in Black's Tea Room, Waterloo, Iowa. A. J. Cotten, P.O. Box 183, Grundy Center, secretary.

Central Iowa Veterinary Medical Association, the third Monday of each month except June, July, and August at 6:30 p.m., Breeze House, Ankeny, Iowa. S. L. Hendricks, secretary-treasurer.

Coon Valley Veterinary Medical Association, the second Wednesday of each month, September through May, at 7:30 p.m., Cobblestone Inn, Storm Lake, Iowa. Robert McCutcheon, Holstein, secretary.

East Central Iowa Veterinary Medical Society, the second Thursday of each month at 6:30 p.m., usually in Cedar Rapids, Iowa. T. F. Bartley, P.O. Box 454, Cedar Rapids, secretary.

Fayette County Veterinary Medical Association, the third Thursday of each month at 6:30 p.m. in West Union, Iowa. H. J. Morgan, West Union, secretary.

Lakes Veterinary Association, the first Tuesday of each month, September through May, at 6:30 p.m., at the Gardson Hotel, Estherville, Iowa. Barry Barnes, P.O. Box 162, Milford, secretary.

North Central Iowa Veterinary Medical Association, the third Thursday of April, at the Warden Hotel, Fort Dodge, Iowa. H. Engelbrecht, P. O. Box 797, Fort Dodge, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Wisneslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northwest Iowa Veterinary Medical Association, the second Tuesday of February, May, September, and December, at the Community Bldg., Sheldon. W. Ver Meer Hull, secretary.

Southeastern Iowa Veterinary Association, the first Tuesday of each month at Mt. Pleasant, Iowa. Warren Kilpatrick, Mediapolis, secretary.

Southwestern Iowa Veterinary Medical Association, the first Tuesday of April and October, Hotel Chieftain, Council Bluffs, Iowa. J. P. Stream, 202 S. Stone St., Creston, secretary.

Upper Iowa Veterinary Medical Association, the third Tuesday of each month at 7:00 p.m., at All Vets Center, Clear Lake, Iowa. F. A. Danker, Dows, Iowa, secretary.

KENTUCKY—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. R. H. Folsom, P.O. Box 323, Danville, Ky., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday of each month in Louisville or within a radius of 50 miles, except January, May, and July. G. R. Comfort, 2102 Reynolds Lane, Louisville, Ky., secretary-treasurer.

LOUISIANA—New Orleans Veterinary Medical Association, the third Thursday of every month at the Monte leone Hotel, New Orleans, at 8:30 p.m. Ronald C. Francis, 6421 Chef Menteur Highway, New Orleans, La., secretary-treasurer.

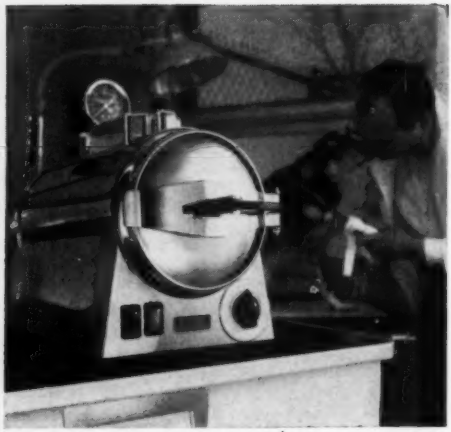
MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m., at the Park Plaza Hotel, Charles and Madison St., Baltimore, Md. Leonard D. Krinsky, 6111 Hartford Rd., Baltimore, Md., secretary.

MICHIGAN—Central Michigan Veterinary Medical Association, the first Wednesday of every month at 7 p.m. Jerry Fries, 2070 E. Main St., Owosso, Mich., secretary.

Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert W. Acton, 4110 Spring Rd., Jackson, Mich.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. Alvin R. Conquest, P.O. Box 514, Grand Blanc, Mich., secretary.

Southeastern Michigan Veterinary Medical Association, the fourth Wednesday of every month, September through May. Louis J. Rossoni, 24531 Princeton Ave., Dearborn 8, Mich., secretary.



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MINNESOTA—Lake Region Veterinary Medical Association, quarterly meetings, with time and place specified prior to each meeting. J. A. Strache, Battle Lake, Minn., secretary-treasurer.

MISSOURI—Greater St. Louis Veterinary Medical Association, the first Friday of each month (except July and August), at the Coronado Hotel, Lindell Blvd. and Spring Ave., St. Louis Mo., at 8 p.m. Edwin E. Epstein, 4877 Natural Bridge Ave., St. Louis 15, Mo., secretary.

Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Thursday of each month at the Hotel President, Kansas City, Mo. Robert E. Guilfoil, 18 N. 2nd St., Kansas City 18, Kan., secretary.

NEVADA—Western Nevada Veterinary Society, the first Tuesday of each month. Paul S. Silva, 1170 Airport Road, Reno, Nev., secretary.

NEW JERSEY—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, R.D. 1, Box 284A, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April, except December, at the Irvington House, 925 Springfield Ave., Irvington, N.J. Bernard M. Weiner, 787 Clinton Ave., Newark, N.J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Elks Club, Hackensack. James R. Tanzola, Upper Saddle River, N.J., secretary.

Northwest Jersey Veterinary Society, the third Wednesday of every odd month. G. L. Smith, P.O. Box 938, Trenton, N.J., secretary.

South New Jersey Veterinary Medical Association, the fourth Tuesday of each month at the Collmont Diner, Collingswood, N.J. Marvin Rothman, 718 Dwight Ave., Collingswood, N. J., secretary.

NEW MEXICO—Bernalillo County Veterinary Practitioners Association, the third Wednesday of each month, Fez Club, Albuquerque. Donald W. Fitzgerald, 1825 Lomas Blvd., N.E., Albuquerque, N.M., secretary-treasurer.

NEW YORK—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 50 University Ave., Rochester, N. Y., secretary.

NORTH CAROLINA—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel, Greensboro. C. G. Sims, 2450 Battleground Ave., Greensboro, N. Car., secretary.

Eastern North Carolina Veterinary Medical Association, the last Tuesday evening of each month, time and place specified monthly. Byron H. Brow, Box 453, Goldsboro, N. Car., secretary-treasurer.

Piedmont Veterinary Medical Association, the last Friday of each month. J. G. Martin, Boone, N. Car., secretary.

Twin Carolinas Veterinary Medical Association, the third Friday of each month at Orange Bowl Restaurant, Rockingham, N. Car., at 7:30 p.m. J. E. Currie, 690 N. Leak St., Southern Pines, N. Car., secretary.

Western North Carolina Veterinary Medical Association, the third Thursday of every month at 7:00 p.m. in the George Vanderbilt Hotel, Asheville, N. Car. H. A. Justus, 924 Lakeside Dr., Hendersonville, N. Car., secretary.

(*Continued on adv. page* 55)

OHIO—Cincinnati Veterinary Medical Association, the third Tuesday of every month at Shuller's Wigwam, 6210 Hamilton Ave., at North Bend Road. G. C. Lewis, 451 E. Galbraith Rd., Cincinnati, Ohio, secretary-treasurer.

Columbus Academy of Veterinary Medicine, every month, September through May. E. M. Simonson, 3120 Valley View Dr., Columbus, Ohio, secretary-treasurer.

Cuyahoga County Veterinary Medical Association, the first Wednesday in September, October, December, February, March, April and May, at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. F. A. Coy, 8208 Carnegie Ave., Cleveland, Ohio, secretary.

Dayton Veterinary Medical Association, the third Tuesday of every month. O. W. Fallang, 6941 Far Hills Ave., Dayton, secretary.

Geauga County Veterinary Medical Society, the third Wednesday of each month, at the Manor House, Newberry, Ohio, at 1:00 p.m. Peter J. Clemens, Jr., R. D. 2, Chagrin Falls, Ohio, secretary.

Killbuck Valley Veterinary Medical Association, the first Wednesday of alternate months beginning with February. C. Gale, Wooster, Ohio, secretary-treasurer.

Mahoning County Veterinary Medical Association, the fourth Tuesday of each month, at 9:00 p.m. Youngstown Maennerchor Club, Youngstown, Ohio. Robert Edwards, 25 Oriole Dr., Youngstown, Ohio.

Miami Valley Veterinary Medical Association, the first Wednesday of December, March, June, and September. J. M. Westfall, Greenville, Ohio, secretary-treasurer.

North Central Ohio Veterinary Medical Association, the last Wednesday of each month except during the summer. R. W. McClung, Tiffin, Ohio, secretary-treasurer.

Northwestern Ohio Veterinary Medical Association, the last Wednesday of March and July. C. S. Alvanos, 1683 W. Bancroft St., Toledo, Ohio, secretary-treasurer.

Stark County Veterinary Medical Association, the second Tuesday of every month, at McBrides Emerald Lounge, Canton, Ohio. M. L. Willen, 4423 Tuscarawas St., Canton, Ohio, secretary.

Summit County Veterinary Medical Association, the last Tuesday of every month (except June, July, and August), at the Mayflower Hotel, Akron, Ohio. M. L. Scott, 42 W. Market St., Akron, Ohio, secretary-treasurer.

Tri-County Veterinary Medical Association, the fourth Wednesday of January, May, and September. Mrs. R. Slusher, Mason, Ohio, secretary-treasurer.

OKLAHOMA—Oklahoma County Veterinary Medical Association, the second Wednesday of every month, 7:30 p.m., Patrick's Foods Cafe, 1016 N.W. 23rd St., Oklahoma City. Claude A. Tigert, 3032 N.W. 68th St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month at the City-County Health Building, 4616 E. 15th St., Tulsa, Okla. Arlen D. Hill, 5302 E. 11th St., Tulsa, Okla., secretary.

Tulsa Association of Small Animal Veterinarians, first and third Mondays. City-County Health Dept. R. H. Featherston, 3129 S. Winston, Tulsa 5, Okla., secretary.

OREGON—Portland Veterinary Medical Association, the second Tuesday of each month, at 7:30 p.m. Ireland's Restaurant, Lloyds, 718 N.E. 12th Ave., Portland. Donald L. Moyer, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Willamette Veterinary Medical Association, the third Tuesday of each month, except July and August, at the Marion Hotel, Salem. Robert J. Mallorie, P.O. Box 155, Silverton, Ore., secretary.

PENNSYLVANIA—Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine. Raymond C. Snyder, N.E. Corner 47th St. and Hazel Ave., Philadelphia 43, Pa., secretary.

Lehigh Valley Veterinary Medical Association, the first Thursday of each month. Stewart Rockwell, 10th and Chestnut Sts., Emmaus, Pa., secretary.

Pennsylvania Northern Tier Veterinary Medical Association, the third Wednesday of each odd numbered month. R. L. Michel, Troy, Pa., secretary.

SOUTH CAROLINA—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. Worth Lanier, York, S. Car., secretary.

Georgia-Carolina Veterinary Medical Association—see GEORGIA.

TEXAS—Coastal Bend Veterinary Association, the second Wednesday of each month. Jack E. Habluetzel, Route 1, Box 65-N, Ingleside, Texas, secretary.

Dallas County Veterinary Medical Association, the first Tuesday of each month at 7:30 p.m., at a place to be specified. Frank N. Black, 12830 Preston Rd., Dallas, Texas, corresponding secretary.

UTAH—Salt Lake Small Animal Hospital Association, the first Monday of every month, at the Holiday Inn, 3040 South State St., Salt Lake City, at 12:15 p.m. Douglas H. McKelvie, 1220 S. State St., Salt Lake City, Utah, secretary-treasurer.

VIRGINIA—Central Virginia Veterinary Association, the second Thursday of each month at 8:00 p.m., except July and August, at a place in Richmond to be announced monthly. Edwin M. Crawford, secretary-treasurer.

Northern Virginia Veterinary Conference Association, the second Tuesday of each month. T. P. Koudelka, P.O. Box 694, Harrisonburg, Va., secretary.

Northern Virginia Veterinary Society, the second Wednesday of every third month. Meeting place announced by letter. H. C. Newman, Box 145, Merrifield, secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. D. F. Watson, Blacksburg, secretary.

WASHINGTON—Seattle Veterinary Medical Association, the third Monday of each month, Magnolia American Legion Hall, 2870 32nd W., Seattle. Roy C. Toole, 10415 Main St., Bellevue, secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August. B. D. Benedictson, 3712 Plummer St., Olympia, Wash., secretary.

WEST VIRGINIA—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the third Thursday of each month in the Hotel Pritchard, Huntington, W. Va., at 8:30 p.m. Harry J. Fallon, 200 5th St., W. Huntington, W. Va., secretary.

WISCONSIN—Central Wisconsin Veterinary Medical Association, the second Tuesday of each quarter (March, June, Sept., Dec.) C. R. Carlson, 1109 E. LaSalle Ave., Barron, Wis., secretary.

Coulee Region Veterinary Medical Association, the third Wednesday of every other month. F. N. Petersen, Box 127, Cashton, Wis., secretary.

Dane County Veterinary Medical Association, the second Thursday of each month. Dr. E. P. Pope, 409 Farley Ave., Madison, Wis., secretary.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. Dr. Raymond Pahle, 10827 W. Oklahoma Ave., Milwaukee, Wis.

(*Continued on adv. page* 55)

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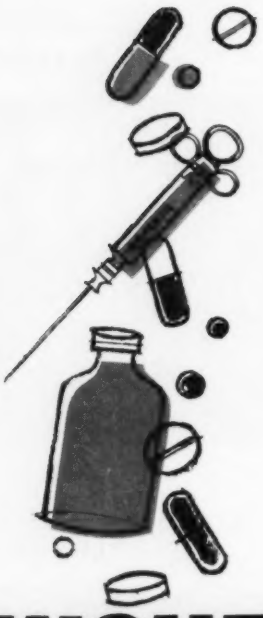

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Wanted—young, ambitious graduate of approved school to replace retiring partner in southeastern Pennsylvania. Dairy practice. Top opportunity. Address Box S 41, JOURNAL of the AVMA.

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Wanted—recent graduate for staff of A.A.H.A. hospital in suburban Chicago. No discrimination

(*Continued on adv. p. 58*)

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Wanted—middle-age veterinarian for position caring for animals in Humane Society. No outside practice. License in state not required. Local veterinary society approval. Address Box S 45, JOURNAL of the AVMA.

FLORIDA—Area veterinarians needed by Florida Livestock Board. Starting Salary $500 month. Personal interview required. C. L. Campbell, State Veterinarian, P.O. Box 389, Tallahassee, Fla.

Wanted—Positions

Graduate (OSU '58) desires position in small animal hospital in Florida. Holds Florida license. Address Box R 39, JOURNAL of the AVMA.

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Veterinarian with degrees in agriculture and veterinary medicine, 15 years as a practitioner, and several years in dairy industry seeks a position in institutional, commercial, or regulatory field. Address Box S 36, JOURNAL of the AVMA.

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Graduate (Pa '57) desires position in mixed or small animal practice in eastern U.S. Finish military January, 1960. Address Box S 30, JOURNAL of the AVMA.

Wanted—Practices

Wanted to buy—established small animal practice and hospital located in Wisconsin, Illinois, Indiana, Ohio, Michigan, Pennsylvania, or Kentucky. Address Box S 26, JOURNAL of the AVMA.

Need small animal or mixed practice hospitals. Southwest practice and real estate broker. Charles E. Doyle, D.V.M., 5930 N.W. 39th, Oklahoma City, Okla.

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Florida hospital for sale or lease in large city on U.S. highway. Must have Florida license. Write for information. Address Box S 10, JOURNAL of the AVMA.

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For sale—practice in Vermont, 80 per cent dairy. Small animal could be increased if desired. Excellent location. Gross $33,000. Address Box S 32, JOURNAL of the AVMA.

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For sale—Indiana, established general practice in Michigan area. Fully equipped ranch-style clinic with family living quarters. $25,000. Credit and personal references in first letter. Address Box S 46, JOURNAL of the AVMA.

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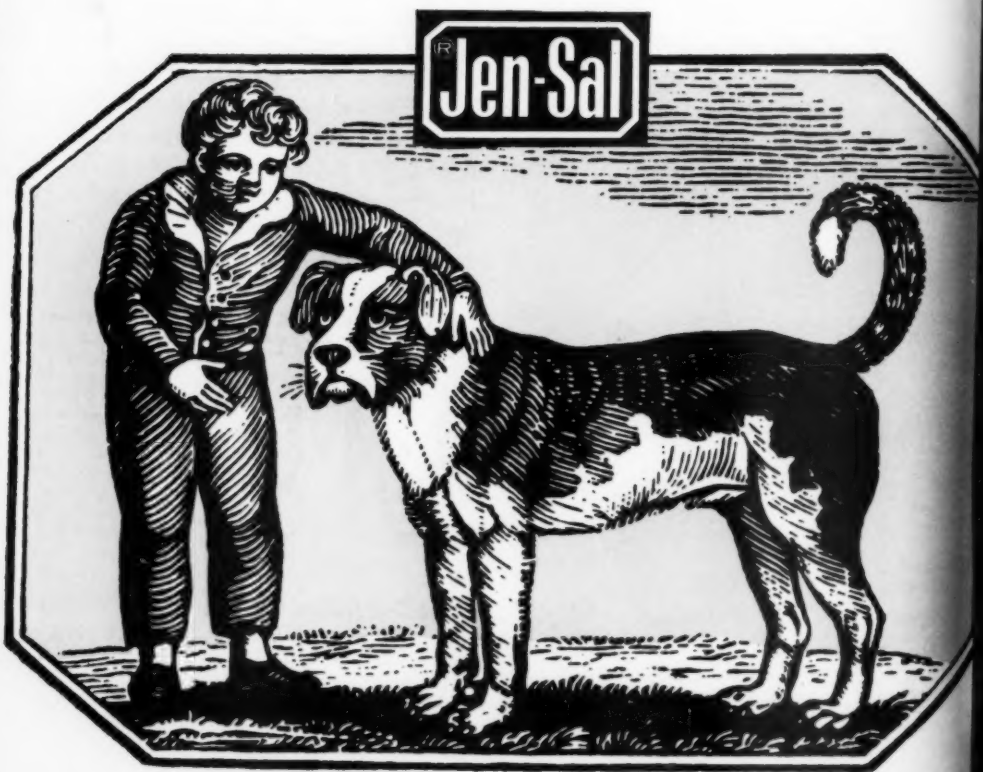

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